MAG Long Range Transportation Plan

Summary and 1997 Update

MARICOPA ASSOCIATION of GOVERNMENTS SEPTEMBER 1997

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Executive Summary

The Maricopa Association of Governments (MAG) Long Range Transportation Plan (LRTP) addresses all modes of transportation in the region. This Plan is usually updated each year, and is based on a 20 year, or longer, time horizon. In this 1997 Update, the time horizon of the Plan is extended from 2015 to 2017. This document summarizes the current status of the Plan and highlights any changes made since approval of the 1996 Plan Update.

OUTLOOK

Over the life of this Plan, resident population in Maricopa County is projected to increase almost 70 percent, while regional travel is projected to increase almost 80 percent. In response to this growth, the MAG LRTP calls for a 69 percent increase in freeway and expressway lane miles, a 57 percent increase in street miles and a doubling of bus services. With these improvements average traffic speed is projected to remain about the same as today and the percentage of congested freeway lane miles in the PM peak hour is projected to increase from 17 to 34 percent. Without the planned improvements (No-Build) speeds are projected to decline 11 miles per hour and the freeway lane miles with PM peak hour congestion are projected to increase from 17 percent to 54 percent.

FINANCE

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires the MAG LRTP to include a balanced funding plan. The MAG funding plan is based on a trend funding concept, that is, current transportation revenue sources are assumed to continue in the future with periodic adjustments for growth and inflation as needed.

For example, it is assumed that local contributions to transit and street construction will continue in the future. Private contributions to street construction are also projected to continue. Federal funding is projected to continue, but at a declining rate in constant dollar terms. At the State level, it is assumed that there will be periodic adjustments in the gasoline tax rate to keep pace with inflation and more efficient vehicles.

The 1996 Plan Update included a half-cent sales tax extension after 2005 when the half-cent for freeways will end. This extension was divided with 50 percent revenue to complete new freeways and 50 percent to double transit service. With higher revenue projections, and changes in the South Mountain design concept, this Plan foresees completing planned new freeways without an extension. Currently cities are looking at pursuing local taxes for transit. The City of Tempe passed a half-cent sales tax for transit in September, 1996.

FREEWAYS

New Freeways. In 1985 voters approved Proposition 300, which implemented a half-cent sales tax to facilitate construction of 230 miles of new freeways and expressways in the region. However, revenues have been less than initially projected and costs have increased. In order to keep cost and funding in balance, 75 miles of freeways were removed from the Plan. This includes the Paradise Parkway, the Estrella Freeway (which was originally added to the Plan for right-of-way protection only) and Grand Expressway (which was originally added to the Plan subject to two-thirds of the funding from State sources).

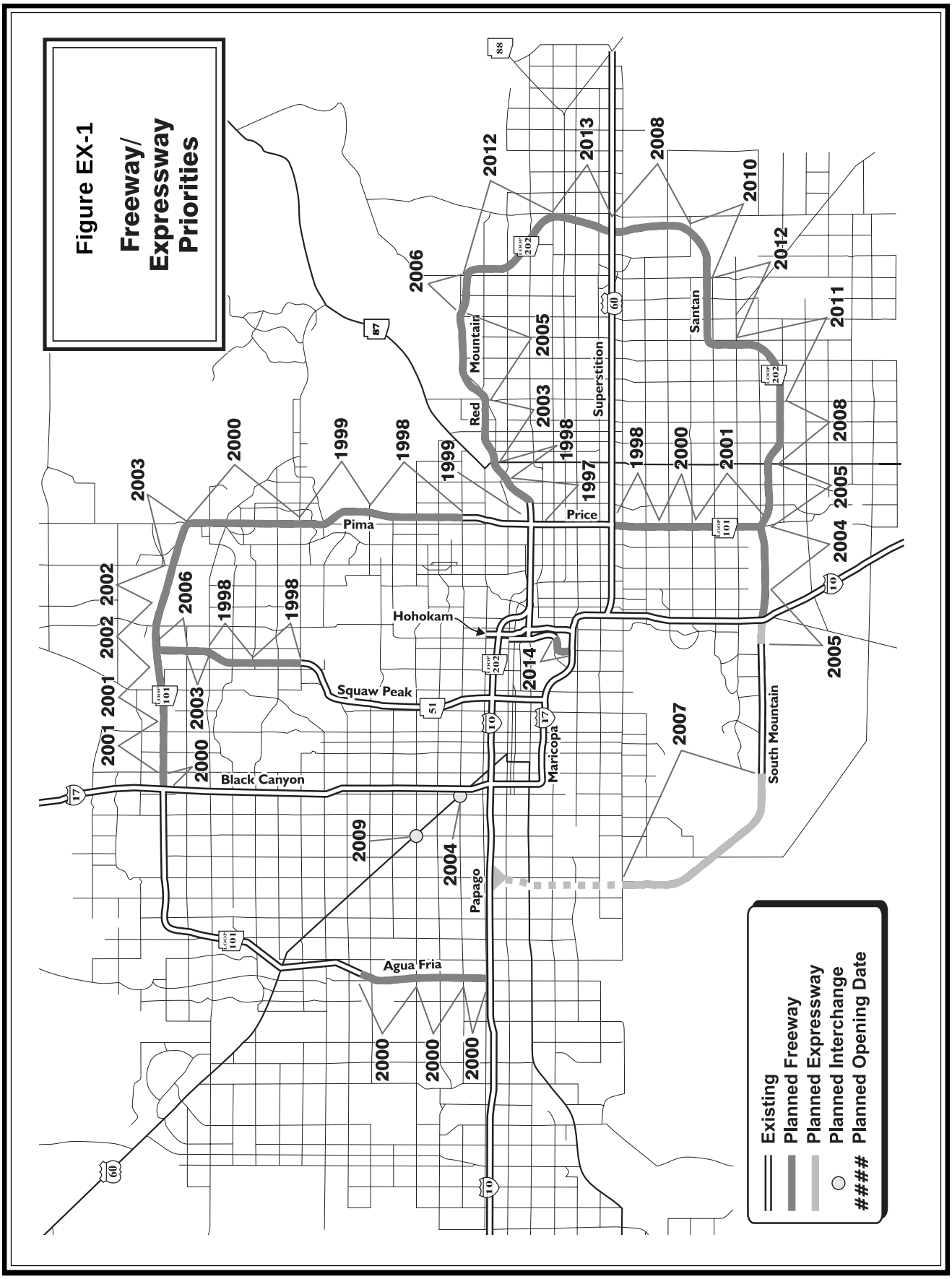
With the turn-around in the economy, revenue projections have been revised upward, and priorities have been adjusted to advance completion dates. Since 1985, 40 miles of the original Proposition 300 controlled access highways have been open to traffic. Under the revised priorities, the entire 115 remaining planned miles can be completed by 2014 with committed revenues (see *Figure EX-1*). This does not require an extension of the existing half-cent sales tax but does require a continued commitment of Arizona Department of Transportation (ADOT) 15 percent funds and 50 percent of MAG federal funds after 2005, also, the South Mountain freeway is changed to an expressway.

Existing Freeways. The MAG LRTP includes improvements to existing freeways. An element of the LRTP is a High Occupancy Vehicle (HOV) Plan which includes HOV lanes on the Black Canyon, Squaw Peak, Superstition and I-10. Other HOV improvements include park-and-ride lots, HOV ramps, and on line bus stations.

The LRTP includes reconstruction of the Black Canyon to 10 lanes. Bridge improvements to accommodate this have been completed or are included in the five-year program. This Update readds the collector distributor roads on I-10 between 24th Street and Baseline Road. These improvements were part of the 1993 Plan Update, but were excluded when the time horizon of the MAG LRTP was changed from 2020 to 2015. MAG near-term priorities for ADOT funding in this region include the following:

1. Interim HOV lanes on I-17 from I-10 to Dunlap Avenue
2. HOV lanes on the Superstition from I-10 to Gilbert Road
3. HOV lanes on the Squaw Peak from I-10 to Shea Boulevard

Figure EX-1: 1997 Freeway Plan



TRANSIT

This Plan doubles bus service and triples dial-a-ride service by 2005 and then keeps pace with growth (see *Figure EX-2*). The cost of this expanded service is equivalent to approximately a one-fourth cent sales tax throughout the region. In 1996, the voters in the City of Tempe approved a one-half cent sales tax to expand transit service. Other cities are also considering tax proposals to fund transit.

The 1993 Update of the MAG LRTP included a 35 mile fixed guideway system. However, when the planning horizon was changed from 2020 to 2015, this element of the Plan was excluded to maintain a balanced funding plan. Currently, MAG is in the process of completing a fixed guideway system study for the region. Also, Major Investments Studies (MIS) that could lead to adding fixed guideway corridors to the MAG LRTP are being actively pursued for: (1) the Central Phoenix/East Valley corridor, (2) downtown Tempe area, (3) Scottsdale corridor, and (4) the near northwest area including portions of Glendale and Phoenix.

In order to be competitive for potential discretionary funding when ISTEA is reauthorized, this 1997 Update includes a fixed guideway starter corridor. The corridor is located in the central, high demand corridor that could serve as the spine for any future regional fixed guideway system proposal (see Figure EX-2). At this time funding for the starter corridor is dependent on local and federal funding sources.

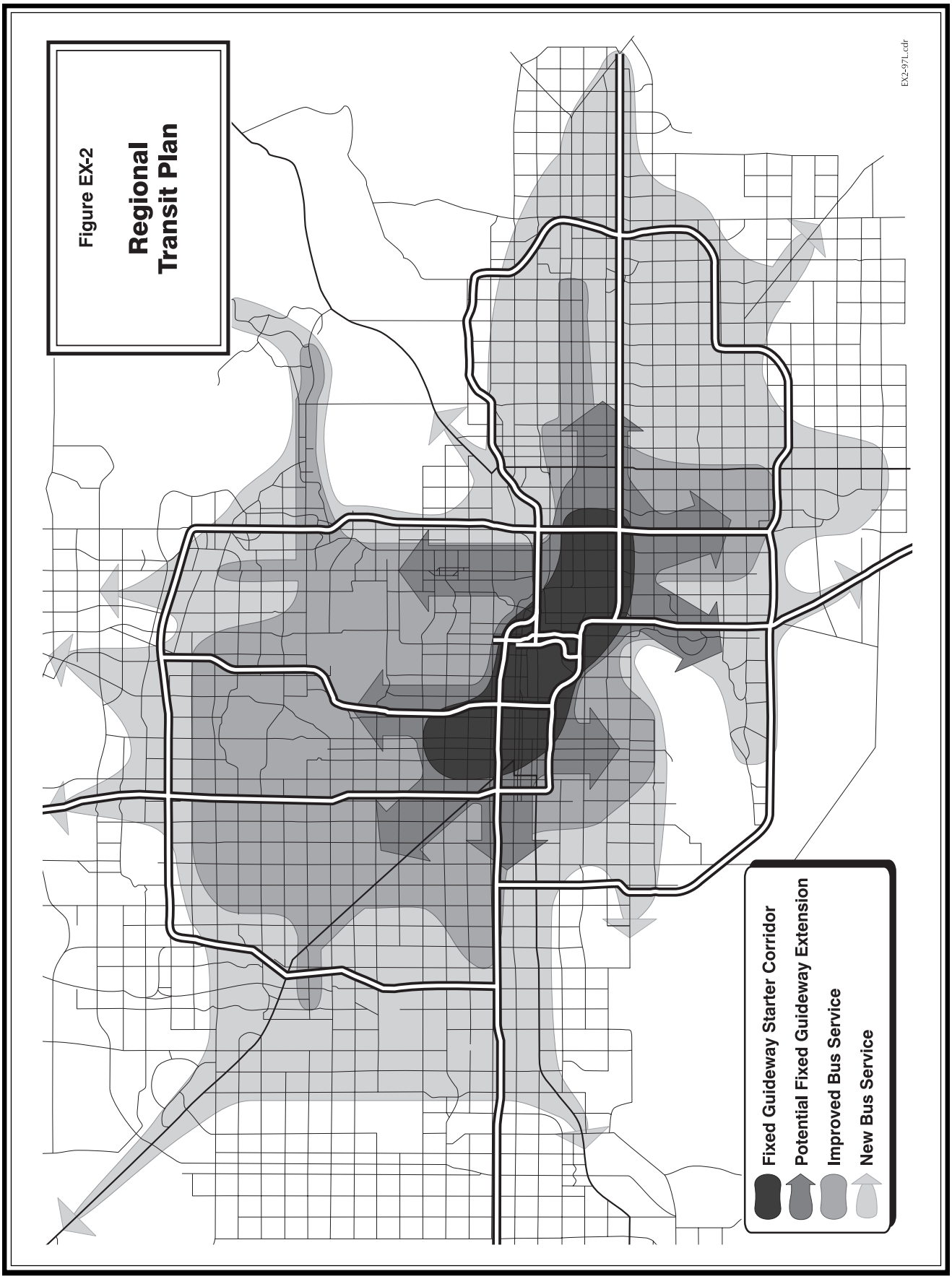
STREETS

Major arterial streets are generally located on the mile grid and carry most of the traffic in the region. The MAG Plan calls for a 56 percent increase in major street lane mileage over the next 20 years. Most of these new lanes are located on the edge of the metropolitan area and are associated with new development. In built-up areas, streets are being widened to bring them up to the usual standard of five or six through lanes. This Update incorporates the latest information on local street plans and extends the planning horizon to 2017.

AIRPORTS

An update of the MAG Regional Airport System Plan (RASP) was adopted by the MAG Regional Council in December 1993. An Implementation Study, designed to facilitate carrying out the MAG RASP recommendations, was completed and approved by the MAG Regional Council in December 1996. The study established an airport database and corresponding sketches, developed a Twenty Year Consolidated Airport Capital Improvement Program and generalized priorities, assessed intermodal needs, and superimposed computerized noise contours over existing and future land use coverages in electronic format. The latest projections indicate that air passenger demand at Sky Harbor will nearly double over the next 20 years, while general aviation demand is projected to increase only 30 percent.

Figure EX-2: Long Range Transit Plan



The MAG RASP includes 17 airports. Sky Harbor is the commercial service airport and Luke Air Force Base is a major military base. Reliever airports include Chandler, Glendale, Mesa - Falcon Field, Phoenix – Deer Valley and Phoenix – Goodyear, Williams Gateway Airport has been converted from a military base to a civilian airport serving commercial carrying cargo and general aviation. The MAG RASP calls for additional runways at Phoenix Sky Harbor, Phoenix – Goodyear and Glendale. Runway extensions are planned at Buckeye, Glendale, Mesa – Falcon Field and Wickenburg. The Plan recommends that potential sites for a new general aviation airport be investigated during the planning period for potential implementation beyond twenty years. While these are the major capacity projects which have a major impact on the MAG region, the MAG RASP also incorporates projects included in airport master plans.

BICYCLES

The 1990 Census indicates that 1.4 percent of all work trips are by bicycle. This compares to 2.7 percent who walk and 2.1 percent who use public transit. The MAG Bicycle Plan was approved in 1992 and update efforts are underway. The MAG Plan includes 160 miles of bicycle routes. At the regional level, transportation enhancement funds and Congestion Mitigation and Air Quality Improvement (CMAQ) funds have been applied to bicycle projects, while at the local level, Highway User Revenue Funds (HURF) and general funds are used for bicycle projects.

PEDESTRIAN

The 1993 Update of the MAG LRTP included a pedestrian element. Under the direction of the MAG Pedestrian Working Group, the report, *Pedestrian Area Policy and Design Guidelines,* was completed and included in the 1995 Update of the MAG LRTP. Some major streets and many other streets include pedestrian facilities throughout the region. The new MAG Guidelines seek to encourage better integration of pedestrian and land use facilities and improve the quality of pedestrian facilities along streets.

DEMAND AND SYSTEM MANAGEMENT

Transportation Demand Management (TDM) programs and Transportation System Management (TSM) improvements are integral parts of the MAG LRTP with specific projects designated for funding in the MAG five year program. Ongoing TDM efforts include telecommuting, rideshare, and vanpool programs. Ongoing TSM efforts include projects to improve traffic signals and expand the freeway management system, as well as improvements to intersections and interchanges. Intelligent Transportation System (ITS) projects are becoming increasingly important in regional transportation planning efforts. In 1996 MAG approved an ITS Strategic Plan for the region, established an ITS committee, and received a $7.5 million dollar grant for advance model deployment of ITS technology.

PART 1

Process

SECTION 1

Planning Process

The Maricopa Association of Governments (MAG) Long Range Transportation Plan (LRTP) addresses all modes of transportation through the year 2017.

To incorporate the latest planning studies and demographic and economic projections, and to ensure consistency with the latest air quality plans, the LRTP is updated annually if feasible. Highlights of this 1997 Update include new freeway priorities which accelerate schedules, incorporation of latest street plans, and the inclusion of a fixed guideway starter corridor. The 1997 LRTP is organized into two main sections: Process and Modal Plans.

This introductory section provides an overview of the MAG organization and the planning process, and includes a discussion of the integration of land use, human services, and air quality planning elements in the transportation planning process. Also, new documents supporting this Update are listed.

MAG ORGANIZATION

The Maricopa Association of Governments was formed in 1967 to address regional planning needs. The member agencies of MAG include incorporated cities and towns within Maricopa County, the County, the Gila River Indian Community and the Salt River Pima-Maricopa Indian Community. In transportation, MAG has been designated by the Governor as the Metropolitan Planning Organization in accordance with U.S. Department of Transportation requirements. MAG is also designated as the Regional Air Quality Planning Agency for the region in accord with U.S. Environmental Protection Agency provisions.

The governing body of MAG is the Regional Council, which includes a representative of each member agency and the Arizona Department of Transportation. In addition, MAG has expanded membership of the Regional Council to include the Chairman of the Citizens Transportation Oversight Committee (CTOC) as an ex-officio member on

matters relating to the Regional Freeway System. Providing CTOC membership on the Regional Council provides citizen representation and facilitates citizen involvement on important matters relating to the MAG freeway plan.

The MAG Management Committee and five MAG policy committees report directly to the Regional Council. MAG has 33 technical committees, 12 of which address transportation issues. The MAG Intelligent Transportation System (ITS) Committee was created as a new technical committee 1996. The ITS Committee was formed to provide a regional forum for sharing information and coordinating activities on items such as regional traffic coordination technologies. Also formed in 1996 is a special steering committee to reassess the Grand Avenue corridor. The following are the committees that address transportation issues:

- Aviation Policy Committee
- Enhancement Funds Working Group
- Grand Avenue Steering Committee
- High Occupancy Vehicle Working Group
- Intelligent Transportation System Committee
- Intermodal Management System Working Group
- Regional Aviation System Plan Technical Advisory Committee
- Regional Bicycle Task Force
- Regional Pedestrian Working Group
- Elderly and Persons with Disabilities Transportation Program Ad Hoc Committee
- Street Committee
- Transportation Review Committee

PLAN UPDATE PROCESS

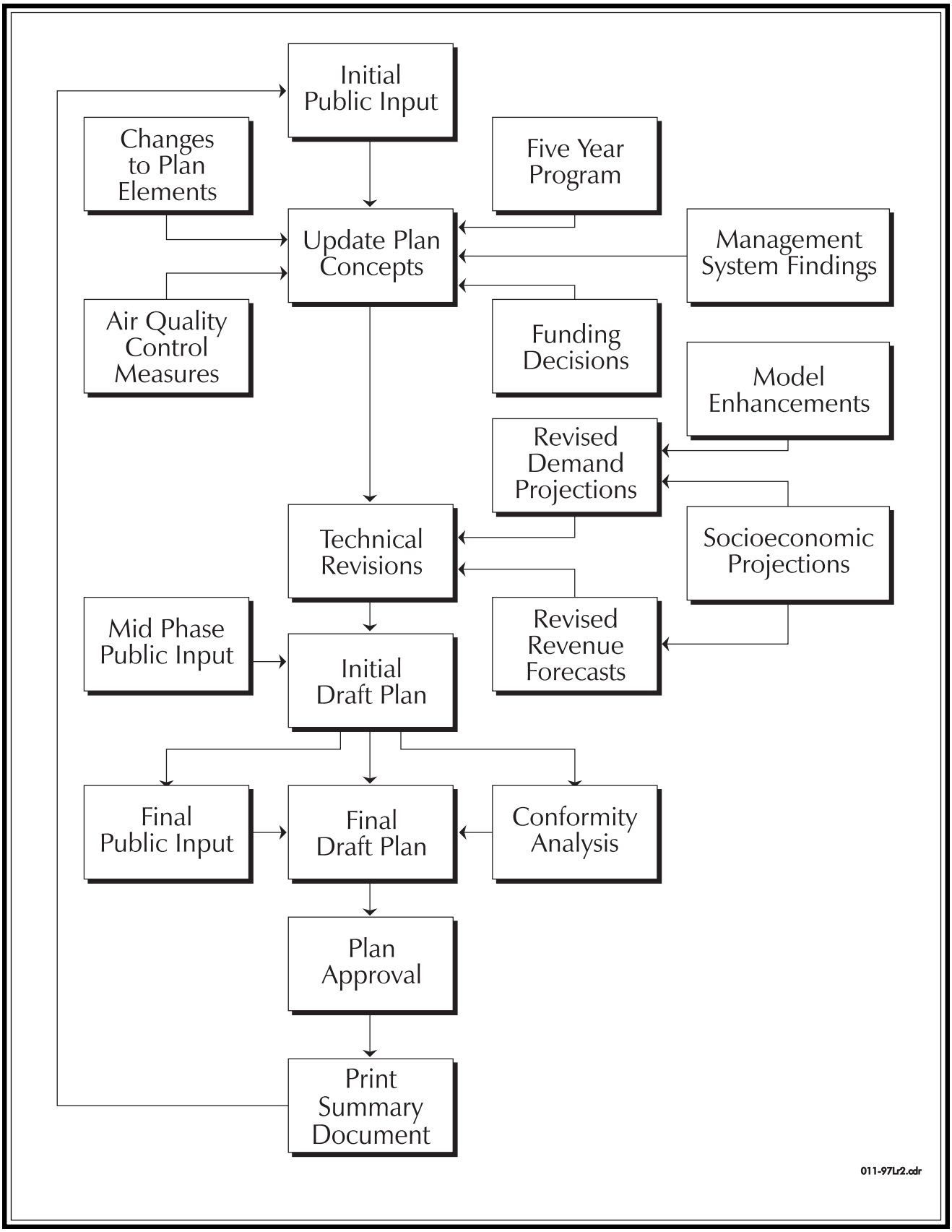
The process for updating the LRTP is shown in *Figure 1-1*. It begins with public meetings to provide MAG with guidance in developing the Plan, then proceeds with the incorporation of recommended Plan additions and modifications. The updated Plan integrates the latest available financial, demographic, economic, and travel demand forecasts and is based on the latest model improvements. It also includes consideration of the latest information from the management systems and factors related to Title VI of the Civil Rights Act of 1964. A draft Plan is prepared for air quality conformity analysis and public comment. The final draft Plan is then submitted to the Regional Council for adoption.

TRANSPORTATION/LAND USE COORDINATION

Transportation and Land Use Coordination is accomplished through several venues. Local communities develop integrated land use and transportation plans. In turn, these land use plans are an important ingredient in developing regional socioeconomic projects. Regional values and policies have also been developed to facilitate the consideration of land use and transportation issues.

Socioeconomic Projections. MAG transportation plans are based on the latest approved socioeconomic projections. This 1997 Plan Update is based on small area socioeconomic projections of population and employment as approved by the Regional Council in June, 1997.

Figure 1-1: Plan Update Process for the MAG Long Range Transportation Plan



MAG socioeconomic projections are developed using a land use modeling process and extensive local review. Local land use plans are a key factor in developing these projections. The resulting socioeconomic projections are a major input into the MAG transportation models which provide transportation projections and analysis used in developing transportation plans.

Regional Values Statement. In February 1994, the Regional Council adopted a regional values statement to provide an umbrella for coordinating MAG planning efforts. The statement included sections on environmental and natural resources, land use, human services, education, public safety, mobility, capital investment, economic development, arts and culture, and fiscal matters.

The mobility section of the values statement formalized values that are implicit in the current LRTP and TIP. The value statement for the mobility section states that residents of the region value, "Safe, convenient, and affordable transportation and access throughout the region regardless of age or physical ability."

Regional Planning Process. In March, 1995, the Regional Council adopted Interim Land Use Policies. The purpose of the policies was to provide direction to staff in commenting on the impacts of regional land use decisions. The Interim Land Use policies encourage, "development that contributes to regional land use patterns that decrease single occupancy vehicle trips and air pollution in the near future and long term." Additionally, the policies encourage development that supports existing and planned land uses, and does not create new urban and suburban cores outside the urbanized area of the region. Staff will continue to review proposed regional land uses for compatibility with these policies and the Regional Values Statement.

Blue Ribbon Committee. In March, 1995, the Regional Council formed the Blue Ribbon Committee to recommend a growth planning process for the region. In February, 1997, the Regional Council accepted the Committee's recommendation and formed the Region 2025 Vision Committee. The 2025 Vision Committee is charged with developing a 2025 Regional Vision and a plan to accomplish it.

TRANSPORTATION/AIR QUALITY COORDINATION

Transportation and air quality plans are closely coordinated. MAG prepares air quality plans for the region based on the latest available socioeconomic projections and transportation plans. In turn, no transportation plan, program or project is approved without completing a conformity analysis. As documented in the related reports, this 1997 Update of the MAG Long Range Transportation Plan is in conformance with all applicable air quality plans.

TRANSPORTATION/HUMAN SERVICES COORDINATION

By incorporating the information and processes of its Human Services Planning Program, MAG is better able to plan for the special transportation needs of people who are elderly and people who have disabilities. This further encourages the public's earlier and continuing involvement in developing plans and programs specific to its interests. Through this process, the needs of people who are traditionally or unavoidably under served by existing transportation systems are sought and considered.

Human Services Plan. The annual MAG Human Services Plan for Maricopa County documents the continuing need for transportation as critical for all of the Plan's targeted population groups: Adults, Families and Children, Persons who are Elderly, Persons with Disabilities, and Persons with Developmental Disabilities. The human services Plan is developed through an annual cycle of activities which include public meetings, regular MAG committee meetings, and meetings with other agencies (state, local general government, and special district) and non profit, community based organizations (such as advocates, service deliverers and planners). The annual Plan documents and maps population distributions based upon the most current census data and describes target population needs, including transportation. MAG facilitates community based forums around special issues, and publishes information which frequently lists resources and sites of available services within the MAG region.

MAG Human Services Coordinating and Technical Committees. The MAG Human Services Coordinating and Technical Committees consider how the region's public transit and paratransit system serves people with special needs and those who are traditionally under served. The issue of inadequate transportation and special transportation for people who are poor, elderly or disabled continues to be problematic. To address these issues, a Special Transportation Needs Study is being completed by the MAG Human Services Coordinating Committee in collaboration with the Transportation Review Committee. Since 1981, MAG has been planning a portion of State Social Services Block Grant (SSBG) funds for populations that may be poor, unserved, under served, elderly and/or disabled within the state's Region I.

Elderly and Persons with Disabilities Transportation Program Ad Hoc Committee. The MAG Elderly and Persons with Disabilities Transportation Program Ad Hoc Committee assesses and recommends projects for inclusion in the ADOT annual Program of Projects for capital assistance. These projects serve special transportation needs of elderly and persons with disabilities in Maricopa County.

1997 PLAN UPDATE

This Update of the MAG Long Range Transportation Plan summarizes information regarding previous planning documents and highlights new planning documents developed as part of the 1997 Update. Specific new documents developed as part of the 1997 process to update the MAG Long Range Transportation Plan include the following:

- *Annual Report on the MAG Freeway & Expressway Plan, February 1997*
- *Conformity Analysis*
- *Conformity Analysis Appendices*
- *MAG Transportation Management Systems, FY 1997 Update*
- *FY 1998-2002 Life Cycle Program*
- *MAG FY 1997 Early Input Opportunity Report*
- *MAG FY 1997 Mid-Phase Opportunity Report*
- *MAG FY 1997 Final Phase Opportunity Report*
- *Major Investment Studies for the Red Mountain and Santan Corridors*
- *FY 1997-2001 Regional Short Range Transit Plan*
- *Regional Freeway System - Life Cycle Certification*
- *Transit System Starter Corridor Designation*
- *MAG RASP Implementation Study*

SECTION 2

Plan Documentation

The MAG Long Range Transportation Plan is a composite of numerous documents and the actions taken by the Regional Council. The following section provides an overview of the entire Plan by presenting the principal documents that comprise the LRTP.

OVERALL PLAN

Cross modal documents developed in relation to this years Update of the MAG LRTP include the following:

MAG 1998-2002 Transportation Improvement Program. (Maricopa Association of Governments, *March, 1997*). A five year program of surface transportation improvements.

Conformity Analysis of the MAG Long Range Transportation Plan 1997 Update and the MAG FY 1998-2002 Transportation Improvement Program. (Maricopa Association of Governments, 1997). Contains an air quality conformity analysis of the Long Range Transportation Plan and five year Transportation Improvement Program.

MAG Process for Public Involvement in Transportation Planning. (Maricopa Associations of Governments, September, 1994) A periodic process for receiving public input, comment and suggestions on transportation planning and programming in the MAG region.

MAG Input Opportunity Report, Early Phase FY 1997. (Maricopa Association of Governments, November, 1996). Contains a summary of public comments and input received during the early phase public meetings concerning the LRTP and Five Year Program.

MAG FY 1997 Process for Public Involvement in Transportation Planning Mid-Phase Opportunity Report. (Maricopa Association of Governments, *March, 1997*). Contains a summary

of public comments and input received during the mid phase public meetings concerning the LRTP and Five Year Program.

MAG FY 1997 Process for Public Involvement in Transportation Planning Final Phase Opportunity Report. (Maricopa Association of Governments, October 1997). Contains a summary of public comments and input received during the final phase public meetings concerning the LRTP and Five Year Program.

MAG Transportation Management Systems Report, *Fiscal Year 1997 Update*. (Maricopa Association of Governments, November 1996). An annual report on the status of the transportation management systems.

Other multimodal reports that comprise the LRTP are documented below. These include recent Major Investment Studies completed by MAG and reports related to the 16 factors that are required to be addressed.

Major Investment Studies For The Squaw Peak and Superstition Corridors. (Maricopa Association of Governments, September, 1996). A study to identify problems and analyze solutions in order to recommend preferred transportation projects in the Superstition and Squaw Peak corridor areas.

Major Investment Studies For The Red Mountain and Santan Corridors. (Maricopa Association of Governments, September 1996). A study to identify problems and analyze solutions in order to recommend preferred transportation projects in the Red Mountain and Santan corridor areas.

MAG Congestion Management System. (Maricopa Association of Governments, September 1994). A report documenting the MAG Congestion Management System (CMS). The MAG CMS is a decision support tool which identifies strategies and policies for managing congestion in the metropolitan area.

MAG Transportation Finance Options Study. (Maricopa Association of Governments, April, 1994) This study was undertaken to assist policy-makers in the formulation of a financing program sufficient to fund all capital improvements and ongoing programs contained in the MAG LRTP.

MAG Long Range Transportation Plan Summary and 1996 Update. (Maricopa Association of Governments, September 1996). Contains a summary and Update of the LRTP as of September 1996.

MAG Long Range Transportation Plan Summary and 1995 Update. (Maricopa Association of Governments, January 1996). Contains a summary and Update of the LRTP as of January 1995.

MAG Long Range Transportation Plan 1994 Update. (Maricopa Association of Governments, July 1994). Contains a summary and Update of the LRTP as of July 1994.

MAG Long Range Transportation Plan: Summary and 1993 Update. (Maricopa Association of Governments, July, 1993). Contains a summary and Update for the MAG Long Range Transportation Plan.

Environmental and Energy Considerations. (Maricopa Association of Governments, July, 1993). A support document for the MAG LRTP 1993 Update addresses environmental and energy factors.

Demographic, Economic, and Land Use Considerations. (Maricopa Association of Governments, July, 1993). A support document for the MAG LRTP 1993 Update. This document addresses socioeconomic factors required by ISTEA.

Intermodal Facilities and Goods Movement. (Maricopa Association of Governments, July, 1993). Support documentation for the MAG LRTP 1993 Update. Inventories and analyzes intermodal terminals and goods movement.

Intermodal Management System for the Metropolitan Phoenix Area. (Maricopa Association of Governments, 1995). Analyzes the connections between all transportation modes used by persons traveling or commodities being shipped. Stresses the enhancement of intermodal choices, connections and coordination.

Supplemental Highway Considerations. (Maricopa Association of Governments, 1993). A technical support document for the 1993 Plan Update that addresses special highway considerations.

Supplemental Transit Considerations. (Maricopa Association of Governments, 1993). A technical support document for the 1993 Update of the MAG LRTP that addresses special transit issues.

AIRPORTS

The airport element of the Plan is documented in the following reports:

MAG Regional Aviation System Plan (RASP) Implementation Study. (Maricopa Association of Governments, December, 1996). Facilitates the implementation of the MAG Regional Aviation System Plan by preparing an aviation database and airport sketches for the MAG system airports, consolidating the airport capital improvement program and general priorities, examining the intermodal access to airports, and displaying noise contours and land use compatibility.

Regional Aviation System Plan, Phase II. (Maricopa Association of Governments, 1993). Evaluated the airspace usage, environmental impacts, access convenience, aviation demand accommodation, facility costs and financial feasibility, and the economic impacts associated with the alternatives identified in Phase I as modified in Phase II. In addition, a strategic implementation plan was prepared to carry out the study recommendations.

MAG Regional Aviation System Plan, Phase I. (Maricopa Association of Governments, 1991). Included an inventory, forecasts, demand/capacity analysis and alternatives for meeting future demand.

BICYCLES

The key bicycle planning documents are:

Regional Bicycle Plan. (Maricopa Association of Governments, 1992). Provides a Bicycle Plan for the MAG region.

Bikeways in the Metropolitan Phoenix Area. (Maricopa Association of Governments, 1997). A map that shows a composite system of existing, locally designated bicycle facilities.

DEMAND MANAGEMENT

The key planning documents for the demand management element of the Plan include:

Maricopa County Trip Reduction Program, Final Report 1996. (Maricopa County, Summer, 1996). A report to the Arizona Department of Environmental Quality on the performance of the Maricopa County Trip Reduction program for fiscal year 1995/96.

Annual Travel Demand Management Survey. (Regional Public Transportation Authority, Spring 1996). A survey conducted to assess participation in and reactions to the Trip Reduction and Clean Air Campaign program.

ITS Strategic Plan; The Early Deployment of Intelligent Transportation Systems (ITS) in Maricopa County. (Maricopa County Department of Transportation, October, 1995). Identifies a set of incremental projects to achieve the required ITS services and recommended system architecture.

Supplemental Report on MAG Recommendations for the Maricopa County Travel Reduction Program. (Maricopa Association of Governments, 1992). Develops travel reduction goals for the MAG area.

Regional Planning Report. (Maricopa Association of Governments, 1991). Section in this report titled, "Regional Rideshare Program Promotes Commuting Alternatives," describes the Regional Ridesharing Program.

FREEWAYS

Key freeway planning related documents include:

Annual Report On The MAG Freeway & Expressway Program. (Maricopa Association of Governments Fiscal Analysis Unit, 1997). Provides a summary of the fiscal status of the MAG Freeway Program and progress made over the past year.

Regional Freeway System Life-Cycle Certification. (Arizona Department of Transportation, January 1997). Presents estimated costs and funds for new freeways.

High Occupancy Vehicle Facilities Policy Guidelines and Plan for the MAG Freeway System. (Maricopa Association of Governments, 1994). Develops a plan to expedite high occupancy vehicles on MAG freeways.

MAG Transportation Plan Update. (Maricopa Association of Governments, 1991). Updates the long range freeway and transit plans.

I-17 System Design/Operations Study. (Arizona Department of Transportation, 1990). Defines the ultimate plan for I-17 from Papago/Maricopa Freeway Interchange northward to Deer Valley Road.

MAG Freeway/Expressway Plan Update: Revenue Sources Analysis. (Maricopa Association of Governments, 1990). Investigates potential revenue sources for funding transportation projects.

MAG Freeway/Expressway Plan Update: Priority Treatment for High Occupancy Vehicles. (Maricopa Association of Governments, 1990). Analyzes alternative freeway related high occupancy vehicle improvements.

MAG Freeway/Expressway Plan. (Maricopa Association of Governments, 1987). Provides a description of the MAG Freeway Plan.

I-10 Corridor Refinement Study: 16th Street/ Buckeye Road to Baseline Road. (Arizona Department of Transportation, May 1988). Develops a rehabilitation plan to correct deficiencies and accommodate future traffic requirements, including a Collector-Distributor concept, in the corridor.

I-17/I-10 Corridor Study. (Arizona Department of Transportation, 1986). Develops a plan for improving I-17 and I-10.

PEDESTRIANS

A plan document for Pedestrian facilities was completed in 1995:

MAG Pedestrian Area Policies and Design Guidelines. (Maricopa Association of Governments, 1994). Develops policies and design guidelines for pedestrian facilities.

STREETS

The street plan is defined by current model networks and is usually updated every two years. In 1995 and 1996, the street plan and a financial plan for the streets, and a study of the Roads of Regional Significance concept were completed. Key documents related to the street element include:

Roads of Regional Significance Evaluation. (Maricopa Association of Governments, 1996). Refines the Roads of Regional Significance concept for the MAG area.

MAG Regional Street Financial Plan. (Maricopa Association of Governments, 1995). Develops a financial plan for streets in the MAG region.

MAG Freeway/Expressway Plan Update, New Corridors Study. (Maricopa Association of Governments, 1990). Evaluates new freeway corridors, Roads of Regional Significance, and capacity increases to existing and planned freeways.

TRANSIT

The key transit planning documents are listed below:

Short Range Transit Plan, Fiscal Year 1996-1997 through 2000-2001, MAG Planning Area. (Regional Public Transportation Authority, December, 1996). A five year program of transit services for the MAG area.

Regional Transit Plan for Maricopa County. (Regional Public Transportation Authority, 1991). This plan focuses on developing the bus and dial-a-ride system. The Plan was developed by the Regional Transit Citizen Advisory Committee.

Americans with Disabilities Act Joint Complimentary Paratransit Plan. (Regional Public Transportation Authority, 1992). This Plan describes a joint planning effort to provide coordinated complementary paratransit service in the area of Maricopa County served by fixed route bus service.

Transit System Starter Corridor Designation, ISTEA II Proforma Recommendation. (Maricopa Association of Governments, January, 1997) The report provides an analysis and location of a proposed Starter Corridor for a Fixed Guideway Transit System in the MAG region.

SECTION 3

Public Involvement

With the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), emphasis on public involvement in the metropolitan transportation planning process has been expanded. The intent of the public involvement provisions in ISTEA are to increase public awareness and involvement in transportation planning and programming. To meet this intent and subsequent ISTEA regulations, the Regional Council adopted the MAG Process For Public Involvement In Transportation Planning in September of 1994. This process, and its application in the 1997 Update, are outlined in this section.

APPROVED PUBLIC INVOLVEMENT PROCESS

The Process for Public Involvement is intended to provide complete information on transportation plans, timely public notice, full public access to key decisions, and opportunities for early and continuing involvement in the process. The following details the three phases of the public involvement process adopted by the Regional Council in September 1994, and presents the opportunities for input which exist in each phase.

Phases of Public Involvement. When the Plan is updated, a three phase process will be used. These phases include:

- ***Early Opportunity for Input.*** A public forum for early input into the Long Range Transportation Plan and TIP will be held. At this stage, public input will be used to identify and address public sentiment regarding transportation plans and programs, with specific reference to upcoming issues and work topics.

Several forum options will be considered, including open houses, staff booths at shopping malls, fair exhibitions, etc. Comments received will be summarized and provided to the Regional Council, the Arizona Department of Transportation and Regional Public Transportation Authority Boards. All meetings will be widely advertised with appropriate advanced notice.

- ***Mid Phase Public Hearing.*** A joint MAG/ADOT/RPTA hearing will be held on regional transportation issues. This hearing will include a periodic report by the MAG Fiscal Analysis Unit.

- ***Mid Phase Input.*** A mid-phase opportunity for input on the initial plan analysis for the Long Range Transportation Plan and TIP will also be held. Several forum options will be considered, including open houses, staff booths at shopping malls, fairs, exhibitions, etc. Comments received will be summarized and provided to the Regional Council, ADOT and RPTA Boards. All meetings will be widely advertised with appropriate advanced notice.

- ***Final Hearing.*** A Transportation Public Hearing will be held to receive comments on the final Draft Plan and Program Update. It will be advertised 30 days in advance and draft reports will also be available 30 days in advance of the hearing.

Ongoing Outreach To The Public. In addition to the public input opportunities provided through the early phase, mid phase and final phase meetings, the public involvement plan also delineates methods to ensure an ongoing public outreach effort is maintained. The listing below presents the outreach process as outlined in the public involvement plan.

- ***Coordination with the Citizens Transportation Oversight Committee.*** In 1994, the Citizens Transportation Oversight Committee (CTOC) was created by statute to review and advise the Governor, MAG and ADOT on regional transportation issues. MAG closely coordinates with the CTOC, attending committee and subcommittee meetings, providing information and staff presentations, and maintaining ongoing communication regarding various transportation issues. CTOC representatives have been regularly attending MAG committee meetings, and in 1996, MAG expanded membership of the Regional Council to include the Chairman of the Citizens Transportation Oversight Committee (CTOC) as an ex-officio member on matters relating to the Regional Freeway System. Providing CTOC membership on the Regional Council provides citizen representation and facilitates citizen involvement on important matters relating to the MAG freeway plan.

- ***Public Presentations to Groups.*** MAG staff will provide speakers upon request to make presentations to community and civic groups, within the limits of available resources.

- ***Traditionally Underserved Populations.*** Through the Regional Public Transportation Agency and the MAG Elderly and Persons With Disabilities Transportation Program Ad Hoc Committee the needs of elderly and people with disabilities are addressed under the Regional Complementary Paratransit Plan. In addition, MAG will seek out and consider the needs of those traditionally underserved by existing transportation systems. MAG transportation plans and programs will be submitted to the Human Services Coordinating Committee for review.

Additionally, MAG will provide multimodal transportation information for review and comment to the Human Services planning process.

- ***Open Meetings.*** MAG conducts meetings in accord with open meetings laws. Meetings of technical committees, working groups, the Management Committee and the Regional Council are open to the public.

- ***Regional Council Comment Period.*** Fifteen minutes at the beginning of each MAG Regional Council meetings are reserved for public comment. This amount of time can be expanded at the discretion of the chairman.

- ***MAG Home Page on the Internet.*** A MAG Home Page on the internet lists information about member agencies, existing committees, planning activities, recent accomplishments, and information resource contacts. The internet address of the MAG Home Page is *http://nova.mcdot.maricopa.gov/mag/welcome/welcome.htm*.

- ***Newsletters.*** Newsletters report information of general interest on events and programs at MAG, as well as on a specific item such as the Long Range Transportation Plan and the TIP.

- ***Press Releases.*** Press releases will be prepared and distributed to local media in conjunction with periodic news events.

- ***Meeting Notices and Advertisements in Principal Newspapers.*** When financially feasible, all of the formal public hearings and public involvement opportunities will be announced with display advertisements in the largest circulation newspaper, in minority oriented newspapers, and on public transit buses. Where appropriate, information will be provided in a bilingual format. Meeting notices for the Long Range Transportation Plan and the Transportation Improvement Program will be sent out fifteen to 30 days in advance.

- ***Direct Mailing.*** MAG will maintain a current mailing list that includes interested citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, advocates for low income and minority interests, and representatives of community groups with an interest in transportation. This mailing list will be used to announce meetings, distribute newsletters, and for other opportunities for public involvement. Interested individuals will be added to the mailing list upon request.

- ***Staff Contacts.*** The name of an appropriate staff contact will be published in the Long Range Transportation Plan, the Transportation Improvement Program, and other related documents.

Other MAG Activities Available To The Public. Prior to the final completion of plans or programs, draft documents are made available to the public for review and comment, so that public concerns can be considered and reflected in the final documents. When draft studies, plans, programs and reports are completed they are presented to the Management Committee and Regional Council for review and action and are available for public review. Once approved, these reports are available upon request while supplies last. Historical reference files of all documents are maintained and these reports are available for public review.

MAG has a broad committee structure which involves technical professionals, administrative per-

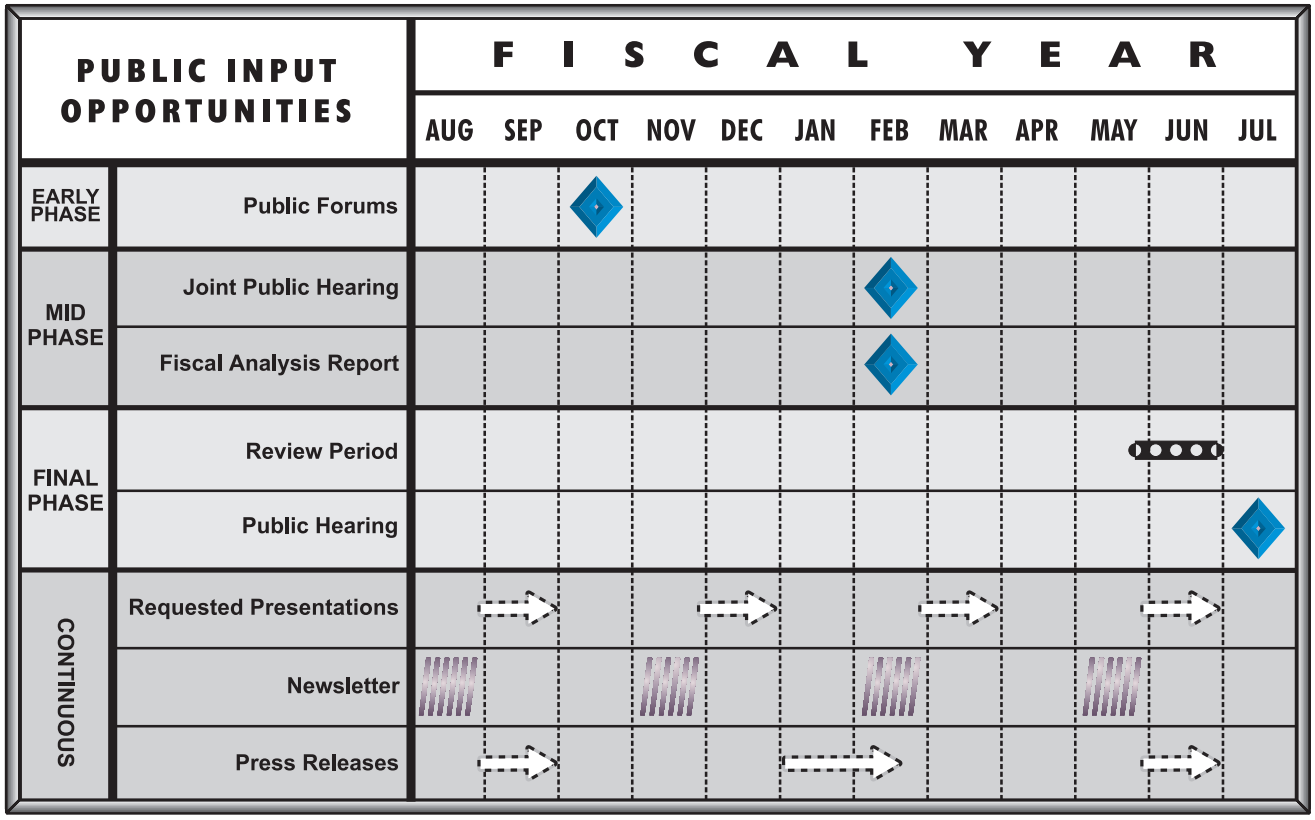
sonnel, elected officials, business interests and citizen volunteers, from every jurisdiction and many professions and interest groups. The meetings of the committees follow the policy described above under "Open Meetings".

FY 1997 PUBLIC INVOLVEMENT PROGRAM

The FY 1997 public involvement program is based on the adopted MAG Process For Public Involvement In Transportation Planning outlined in the previous section and as shown in *Figure 3-1*. The 1997 Program is a combined process to solicit input into both the FY 1997 Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) Updates. This public involvement process allows discussion of upcoming decisions that are likely to be included in the 1997 Plan and Program Updates. The Arizona Department of Transportation (ADOT) and the Regional Public Transportation Authority (RPTA) participate in many of these key elements. A description of each phase of the update process follows.

Early Input Phase. To ensure early involvement of the public in the development of plans and programs, the FY 1997 public involvement process began with regional meetings conducted in the central, western, and eastern areas of the MAG region in October, 1996. The meetings were comprised of an informational open house and brief presentations. Staff from the Maricopa Association of Governments (MAG), the Regional Public Transportation Authority (RPTA), and the Arizona Department of Transportation (ADOT) were available

Figure 3-1: Targeted Public Involvement Process



to discuss issues and gather information on a number of current topics such as freeway priorities, future transit plans, rail transit possibilities, urban growth, low cost transportation improvements, special transportation needs, and Grand Avenue. The *Input Opportunity Report, Early Phase, FY 1997* (MAG, November 1996) contains the results of these meetings.

Mid-Phase. During the mid-phase, a second round of public meetings were held. A public hearing was held in central Phoenix, and open houses were held in the northwestern and eastern areas of the MAG region. This process occurred in February of 1997. In the northwestern region, the open houses consisted of a presentation on the future of the Grand Avenue corridor. In the eastern region, the open houses presented information on the future of the Superstition corridor. In addition, information was available and public input was sought on all elements of the draft Long Range Transportation Plan and Transportation Improvement Program.

The public hearing provided an opportunity for public input on transportation issues to the governing boards of MAG, ADOT, and RPTA. A presentation of the Annual Report on the freeway system by the MAG Fiscal Analysis Unit was also provided at this hearing.

Final Phase. (Forthcoming) During the final phase, a public hearing will be held. In accordance with federal regulations, a public hearing on air quality conformity, the LRTP and the TIP is required before the adoption of these plans and programs. Formal comments received during the comment period will be summarized and provided to the Management Committee, the Regional Council, and interested citizens. After the public hearing, the Regional Council will take action to approve the finding of conformity for the 1997 Update of the LRTP and the 1998-2002 TIP.

Continuous Involvement Activities. As part of the refinement of the continuous outreach process, MAG staff has presented information on the FY 1997 Update of the Long Range Transportation Plan to a number of committees and groups. Slide presentations on the transportation/land use/air quality interrelationship were made to the Phoenix Chamber of Commerce and the League of Women Voters. Information is provided to the news media on an ongoing basis.

SECTION 4

Plan Analysis

This section summarizes how the Update of the MAG Long Range Transportation Plan (LRTP) is analyzed. Elements considered include: planning factors, Title VI of the Civil Rights Act of 1964, planning models, transportation management systems and systems performance indicators.

PLANNING FACTORS

In developing the LRTP, MAG considers sixteen factors which are mandated by the Intermodal Surface Transportation Efficiency Act of 1991. These factors include the following items:

1. Preservation of existing transportation facilities.

2. Consistency with Federal, State and local energy conservation programs, goals and objectives.

3. The need to relieve congestion and prevent it from occurring in new areas.

4. Land use and development impacts and consistency with short and long-term land use plans and programs.

5. The programming of transportation enhancement projects.

6. The effects of all transportation projects within the metropolitan area regardless of funding source.

7. Access to international borders, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreational areas, monuments, historic sites and military installations.

8. The need for connectivity of roads within the metropolitan area with roads outside the metropolitan area.

9. Transportation needs identified by transportation management systems.

10. Preservation of rights-of-way for construction of future transportation projects.

11. Methods to enhance the efficient movement of freight.

12. The use of live-cycle cost in the design and engineering of bridges, tunnels and pavements.

13. The overall social, economic, energy, and environmental effects of transportation projects.

14. Methods to expand and enhance transit services and encourage transit usage.

15. Capital investments that would result in increased security in transit systems.

16. Recreational travel and tourism.

In *Appendix B*, each of the above factors is discussed separately, and each Plan element or document that addresses the corresponding factor is identified. General discussion regarding how the factors are considered throughout the planning process is included as well.

TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color and national origin by recipients and sub-recipients of federal funds and prohibits exclusion from participation in, denial of benefits, or being subjected to discrimination under any program or activity receiving federal financial assistance. Additional federal and state laws and directives prohibit discrimination on the basis of religion, age, gender, handicap or disability. The Act and its related laws and directives hereinafter will be referred to, collectively, as Title VI.

MAG, as the designated Metropolitan Planning Organization (MPO) in the region is a recipient and sub-recipient of federal funds. Acceptance of federal funds requires that MAG address the federal laws and directives relating to nondiscrimination in our planning and programming processes.

MAG employs several methods to comply with Title VI issues in its transportation planning and programming processes. As the regional planning entity, MAG collects socioeconomic data. Data on race, gender, age, income status, ethnicity and disability are incorporated in the *MAG Human Services Plan for Maricopa County* and the *MAG Transportation Management Systems Report*.

The MAG Human Services Planning Program assesses the priority needs of local minority populations and people in under served communities. The processes, findings and recommendations of the Program are included in the annual *MAG Human Services Plan for Maricopa County*, and are integrated into the transportation planning program.

The *MAG Transportation Management Systems Report* is prepared as a guide for selecting projects to be included in the annual update of the *MAG Transportation Improvement Program (TIP)*. The report includes socioeconomic data to guide decision making, and is offered for local consideration when proposing projects for inclusion in the TIP.

Additional efforts to comply with Title VI include:

- MAG staff attendance of federal and state training courses related to Title VI.

- Consideration of the 16 factors required by ISTEA.

- Gathering and inclusion of demographic information about protected populations for the *Urban Atlas*, presently being developed.

- Enhanced MAG public participation process to insure input of populations specifically mentioned by Title VI in the transportation plans and programs.

- Conducting on-board origin and destination surveys to identify characteristics of transit riders.

- Integration into the MAG transportation planning program of the priority needs of local minority populations and people in under served communities through the MAG Human Services Planning Program.

- Provide Title VI information and training for MAG member agencies.

MAG is responsible for incorporating Title VI requirements in its plans and programs. The enforcement of statewide compliance, including the MAG region, is the responsibility of ADOT. It is the policy of MAG to assist ADOT in its compliance efforts.

PLANNING MODELS

To provide a technical basis for analyzing the LRTP, MAG maintains a comprehensive set of models to systematically project employment and population, traffic demand, and air quality. These models allow both the projection of current trends and the evaluation of planning alternatives.

Linkages between the MAG models are shown on the following page in *Figure 4-1*. As indicated by the figure, the MAG models are linked in a chain beginning with socioeconomic models and ending with air quality models.

Socioeconomic Models. The primary output of the MAG socioeconomic models is projections of population, households, land use and employment by small area. Key technical inputs include estimates of total county population developed by the Arizona Department of Economic Security (DES), land use plans from MAG member agencies and projected PM peak travel times from MAG transportation models.

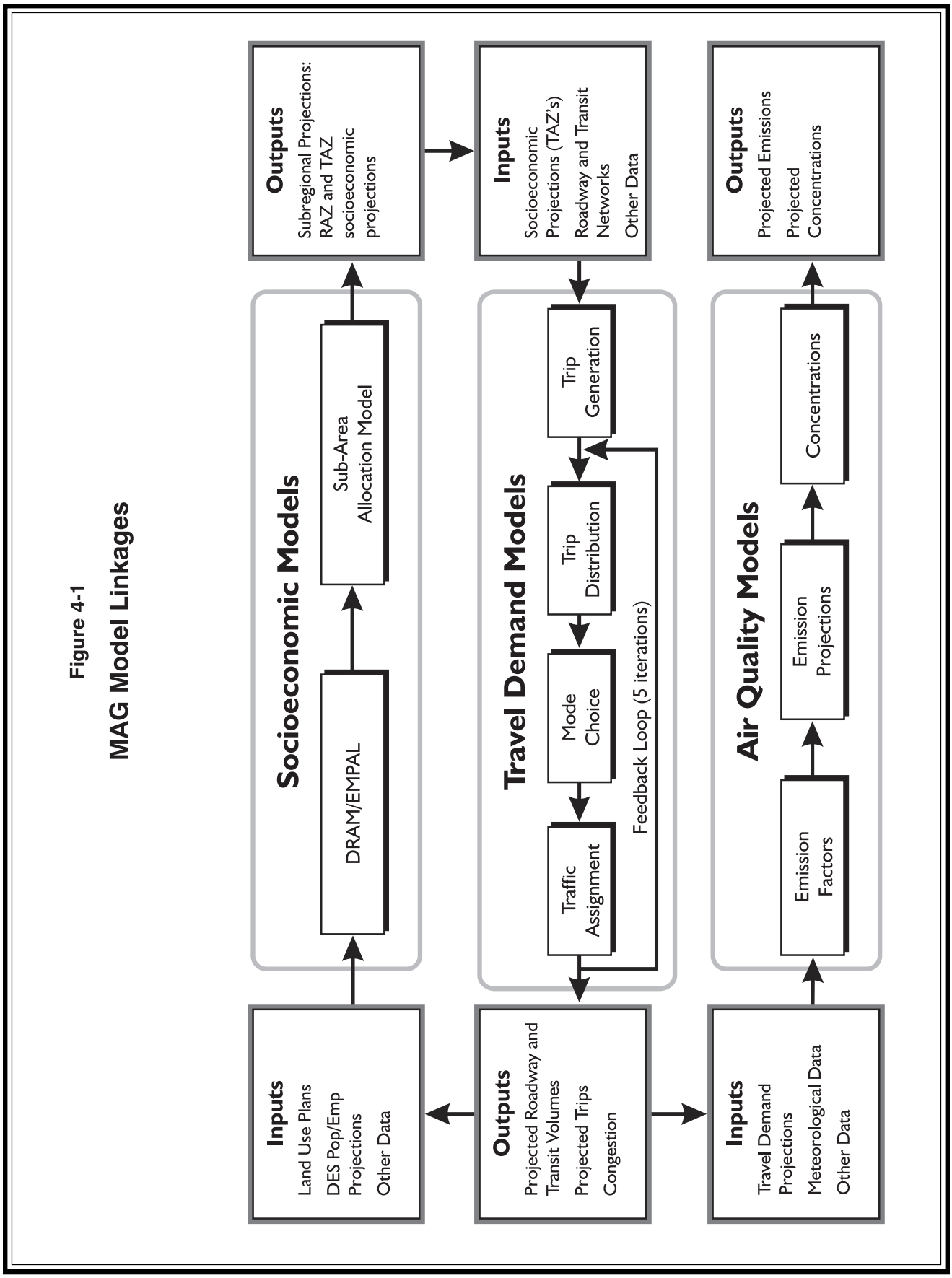
MAG uses a computer software package called DRAM/EMPAL to develop subarea forecasts. DRAM/EMPAL allocates county level population and employment forecasts to 147 Regional Analysis Zones (RAZs) in five year increments.

In general, DRAM/EMPAL allocations are based on the relative attractiveness of each RAZ and its accessibility to other RAZs. For each five year interval, the amount of land available for development and the type and extent of development are calculated. Also, travel times between RAZs are calculated. Based on statistical analysis of past locational decisions of businesses and households, DRAM/EMPAL allocates county level population and employment forecasts to RAZs.

RAZ-level forecasts are disaggregated into Traffic Analysis Zones (TAZs) using a Subarea Allocation Model (SAM). These TAZ allocations are based on geographic information system (GIS) representations of existing land use, the adopted general plan for the region and transportation system accessibility measures.

New TAZ projections used in the 1997 conformity analysis were developed using DRAM/EMPAL and SAM along with data from the 1995 Special Cen-

Figure 4-1: MAG Model Linkages



sus conducted in Maricopa County. These TAZ projections were adopted by the MAG Regional Council in June 1997.

Travel Demand Models. The MAG travel demand models forecast roadway and transit usage throughout the metropolitan area. Key outputs of these models include projections of average daily traffic, trips by purpose and mode, traffic volume to roadway capacity ratios, and travel time. Key inputs to these forecasts include socioeconomic projections by TAZ and planned roadway and transit networks.

A four step modeling process is used. The steps in this process include:

- Trip Generation - Based on the socioeconomic data, the total number of trip produced and attracted by each TAZ are estimated.

- Trip Distribution - The distribution of trips between TAZs is estimated based on expected trip length distributions by trip purpose (home based work, shop, school, non-home based) and time of day (AM peak, midday, PM peak and night time).

- Mode Choice - The distribution of trips between TAZs is then stratified by transportation mode (i.e., auto driver, carpool and transit).

- Traffic and Transit Assignments - Once mode choice has been determined, the volume of travel on roadway and transit networks is estimated by minimizing the travel cost of each trip. Output of the transit assignment is passenger volumes per route. Output of the traffic assignment is the volume of traffic on each link on the highway network for the peak hour and 24 hours. The latter is input directly into the MAG air quality models described below.

Air Quality Models. MAG uses a variety of models (i.e., DTIM, TRFCONV, CAL3QHC, UAM) to analyze the air quality impacts of transportation policies, programs, and plans. These models are used to assure that the Transportation Improvement Program and Long Range Transportation Plan conform to the applicable air quality plans for the region as required by Federal regulations. Air quality models are also used to develop attainment demonstration plans. The MAG air quality models are used to estimate regional emissions for carbon monoxide, volatile organic compounds (VOC) and particulate matter smaller than 10 microns (PM-10), and pollutant concentrations for carbon monoxide and ozone.

A regional emissions analysis is conducted for carbon monoxide, volatile organic compounds, and PM-10. This analysis consists of estimating motor vehicle emissions by time and place based on transportation model inputs of vehicle travel, then aggregating the emissions to regional totals for the duration of a modeled episode. The PM-10 analysis also includes emissions from re-entrained dust. Concentrations of carbon monoxide and ozone are modeled using the Urban Airshed Model. In addition, a microscale analysis is conducted for carbon monoxide. This analysis involves estimating the localized impacts of congested intersections or other "hot spot" sites.

A detailed description of the air quality modeling process is contained in *Conformity Analysis* (MAG, September 1997).

TRANSPORTATION MANAGEMENT SYSTEMS

ISTEA encourages the development and implementation of six transportation management systems to monitor the performance of the transportation system, identify transportation needs, and suggest effective strategies for addressing transportation problems. Although recent federal legislation has substantially relieved States of the responsibility for implementing these management systems, in whole or in part, ADOT has decided to continue with their implementation pending further review. *Figure 4-2* lists these management systems and indicates their current operational status.

The State has overall responsibility for ensuring the development of the management systems in cooperation with MAG and other agencies. MAG has specific responsibility for developing the CMS and the IMS, within the MAG region and the Regional Public Transportation Authority is responsible for developing the PTMS.

To facilitate the use of the management systems in the planning process, each year the latest data and updates to plans, policies, strategies and evaluation procedures are integrated into a management systems report. This report indicates needs and methods to evaluate proposed projects, including a section related to Title VI of the Civil Rights Act of 1964. The report is provided early in the process to the public and to MAG member agencies to facilitate the identification of projects for programming and plan adjustments. Projects recommended by sponsors are forwarded to MAG to be rated and analyzed using adopted Congestion Management System and Air Quality Rating formula. Based on these analyses, MAG policies, funding limitations and input from the public, MAG staff and MAG committees draft a five year program and plan update.

Figure 4-2: Management System Status

Management System	Lead Agency	Operational Status
Congestion Management System (CMS)	MAG	Fully operational
Intermodal Management System (IMS)	MAG	Fully operational
Pavement Management System (PMS)	ADOT*	Partially operational
Safety Management System (SMS)	ADOT*	Under development
Bridge Management System (BMS)	ADOT*	Largely operational
Public Transportation Management System (PTMS)	RPTA**	Under development

* Arizona Department of Transportation

** Regional Public Transportation Authority

Congestion Management System (CMS). The CMS is a decision support tool that is designed to improve the ability of MAG to prepare programs and plans which will reduce congestion and prevent it from occurring where it is now absent. A basic federal requirement of the CMS is that for projects that significantly increase single occupant vehicle (SOV) capacity the CMS must provide "an appropriate analysis of all reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project . . . is proposed."

To accomplish this objective, the CMS includes the following elements:

- Annual Report on Strategies and Needs. The annual Management Systems report describes current congestion problems, identifies future project needs, assesses progress in implementing congestion relief strategies and monitors the implementation of the program. It also includes project information from the other management systems. It is distributed to MAG member agencies and other public agencies to aid them in submitting projects for inclusion in the program and plan.

- Performance Indicators. MAG CMS performance indicators focus on current and forecasted congestion as well as transit load factors.

- Project Rating System. Projects which are submitted to MAG for inclusion in the plan and program are quantitatively ranked to the extent feasible. This process is based on consideration of current and forecasted congestion, accessibility improvements to congested areas, support for local land use planning efforts, cost-effectiveness, and the provision of modal options.

  Projects which encourage pedestrian, bicycle, high occupancy vehicle and transit use are given extra points in this rating system. Also, points are given for projects from communities which pursue preferred land use strategies. These strategies include:

  - Multimodal transportation planning which provides for a choice of modes.

  - Land use planning which encourages the development of activity centers.

  - Planning for the preservation of open space.

  - Plans to limit growth in seriously congested areas to activity centers.

  - Provision in the development approval process of checks to insure that transit, pedestrian and bicycle needs are considered.

  - Land use planning which encourages a balance between housing and employment.

  - The use of development impact fees to help ensure that new development is not publicly subsidized.

- Policy and Funding Checks. Once projects have been rated they are checked to assure that they are consistent with applicable policies and funding limitations, including the following:

  - Options to single vehicle occupant projects have been addressed.

  - Transportation control measures included in the applicable air quality plans are included.

- Freeway priorities are in accord with MAG freeway criteria.

- MAG funding plan requirements are met and are consistent with programmed projects.

- MAG High Occupancy Vehicle Plan requirements are met.

The CMS reinforces links between near term transportation investments and the long term implementation of the LRTP. It incorporates the MAG High Occupancy Vehicle Plan and the regional bicycle plan as factors to guide transportation investments, limits project funding to conform to the funding plan contained in the LRTP and helps insure that Federally funded capital investments on streets and freeways preserve and enhance transit service. The Annual Report also tracks the implementation of the LRTP and provides data upon which to evaluate and improve the LRTP.

Intermodal Management System (IMS). The MAG IMS focuses on terminals where persons or goods can transfer from one mode of transportation to another. It is intended to ensure that the special needs and problems of these facilities are considered in the programming and planning process. The MAG IMS process includes a comprehensive list of all major freight and passenger terminals in the MAG area, a list of IMS needs and problems compiled from terminal operators, and a rating system for potential IMS projects.

Pavement Management System (PMS). A PMS is a systematic procedure for evaluating pavement condition and a process to identify preferred actions taken to maintain the quality of pavements. ADOT is the lead agency responsible for developing the PMS. Implementation of the PMS has been effectively limited to projects on the statewide system and there are currently no plans to implement a statewide PMS rating system. However, several MAG jurisdictions and agencies already have well developed PMSs in place and use the results of such management systems to guide decisions regarding pavement preservation and maintenance projects.

Safety Management System (SMS). The overall purpose of the SMS is to achieve a high level of safety on all roadways. This purpose is to be accomplished through the development of educational and enforcement programs that promote safety as well as ranking, recommending and funding various safety related projects at the state and local level. ADOT is the lead agency responsible for developing the SMS.

Currently, MAG uses accident rates and traffic volumes to evaluate safety projects. When the SMS becomes operational, it is anticipated that this rating system will be replaced by the SMS.

Bridge Management System (BMS). A BMS is a decision support tool that supplies analyses and summaries of data, uses mathematical models to make predictions and recommendations, and provides the means by which alternative policies and programs may be efficiently evaluated. It consists of a data collection process and procedures for project and policy evaluation.

ADOT is the lead agency responsible for developing the BMS and is coordinating its implementation with MAG and other regional and local agencies. Development of the BMS is continuing and is based largely on the existing State Bridge Inventory System. Full implementation of the BMS is expected by October 1998.

Public Transportation Management System (PTMS). The PTMS is intended to be a systematic process that continually collects and analyzes information on the condition and cost of transit assets. When this information is incorporated into the planning of the regional public transportation system, it will improve the ability of decision makers to select cost-effective strategies for providing and maintaining transit assets in a serviceable condition. Transit assets include:

- Maintenance facilities
- Transit stations
- Transit terminals
- Transit related structure
- Transit vehicles

The RPTA is the lead agency responsible for developing and implementing the PTMS in the MAG area. In August, 1996, the RPTA submitted the first year element of the PTMS which included transit vehicles. PTMS is expected to be fully implemented by October, 1997.

Subsequent to enactment of the National Highway System Designation Act in November 1995, a Final Rule for Management and Monitoring Systems has been released, effective on January 21, 1997. This final rule confirms that the certification and sanction requirements for management systems have been removed and also confirms that States may elect to not implement the management systems, in whole or in part. At this time, and pursuant to the above final rule, the State of Arizona has not issued any guidance regarding the future implementation of the management systems. In the absence of such guidance, MAG will continue to implement the management systems as appropriate.

SYSTEM PERFORMANCE[1]

From 1995 to 2017, resident population in Maricopa County is projected to increase 70 percent, while regional travel is expected to increase 80 percent. In response to this growth, the Long Range Transportation Plan calls for a 69 percent increase in freeway lane miles, a 57 percent increase in street miles and a doubling of bus service.

Figure 4-3 (See next page) provides a comparison of performance measures for 1995, 2017 with the LRTP in place, and a 2017 no-build scenario. The no-build scenario represents 2017 travel demand assigned to a 1997 network. That is, no additional improvements to 1997 streets, freeways or transit service are reflected in the 2017 no-build scenario.

Figure 4-3 indicates that the LRTP accommodates an 80 percent increase in vehicle miles of travel (VMT), with only a minimal decline in peak hour speeds. The percentage of intersections that are congested is projected to increase somewhat and the total hours of delay in the region more than doubles (from 42 thousand hours to 96 thousand hours) with the LRTP.

Because the LRTP includes additional new freeways, as might be expected, the amount of traffic carried on these facilities is higher for the LRTP (29 percent) than in 1995 (24 percent). In contrast, the 2017 no-build scenario exhibits a significant degradation of service. The vehicle miles of travel are lower for this scenario because the heavy-congestion results in shorter trips. Freeways in the no-build scenario carry a lower percentage

[1] The system performance analysis is based on socioeconomic projections approved by the Regional Council in June 1997.

of traffic (21 percent) than today, because freeways become so congested that drivers take alternate routes instead. Total hours of delay in the peak hour increase over five and one-half times (from 42 thousand hours of delay in 1995 to 28 thousand hours in the 2017 no-build scenerio).

Figures 4-4 and 4-5 illustrate the daily level of travel on freeways during an average weekday in 1995 and 2017 LRTP, respectively. The major intersections and freeways which experience congestion (volume to capacity ratio greater than .9) during the PM peak hour for 1995 and 2017 LRTP are identified in *Figures 4-6 and 4-7*.

Figure 4-3: System Performance Indicators

System Performance Indicator	1995[2]	2015 Travel Conditions	
		2017 LRTP[3]	No Build[4]
Total Daily Person Trips[5]	10 million	17 million	17 million
Vehicle Miles of Travel	58 million	106 million	102 million
Percent of Traffic on Freeways[6]	24%	29%	21%
Total Hours of Delay in the PM Peak Hour (In Thousands)	42	96	287
Average PM Peak Hour Speed[7]	28 mph	27 mph	17 mph
Percent of total Freeway Lane Miles which are congested in the PM Peak Hour[8]	18%	34%	54%
Number of Congested Intersections in	164 (14%)	232 (17%)	544 (46%)

1. Data in this table are derived from MAG travel demand models and reflect the area covered by the urbanized area twenty-five years into the future.
2. Based on travel demand simulation 1995HF.
3. Based on travel demand simulation 2017H2.
4. Based on travel demand simulation 2017NB3.
5. All trips by persons using motorized conveyance (i.e. car, truck, motorcycle, bus) on an average weekday.
6. Includes traffic on ramps and High Occupancy Vehicle (HOV) lanes.
7. Travel demand simulation average speeds on freeways and major streets during the PM peak hour are factored by the ratio of 1993 observed versus estimated vehicle hours of travel.
8. Lane miles of freeways operating at a volume to capacity ratio greater than 0.9 (at levels of service E and F) during the PM peak hour.
9. Intersections in the PM peak hours with a volume to capacity ratio greater than 0.9 (at levels of service E and F).

Figure 4-4: 1995 Freeway Traffic

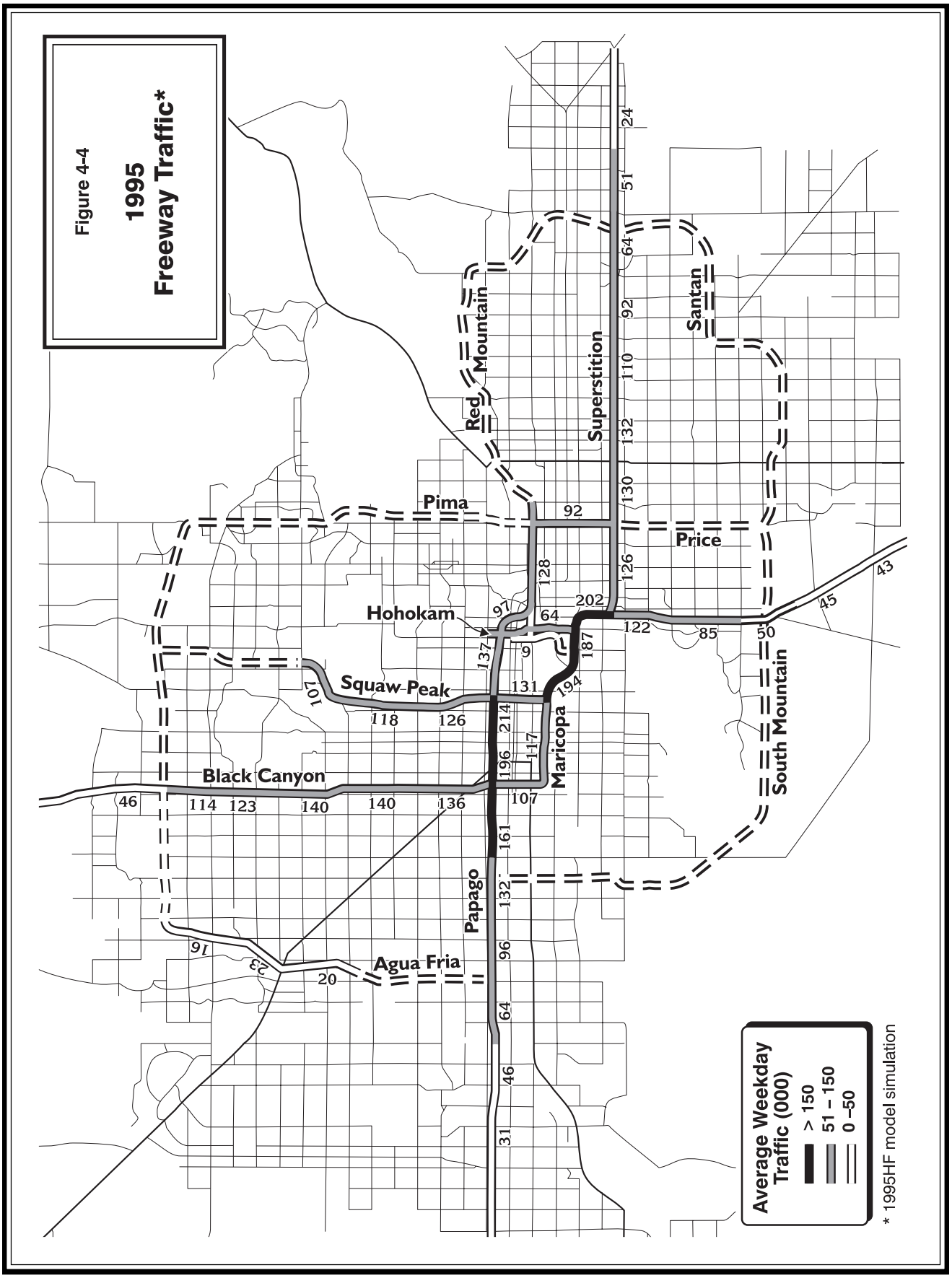


Figure 4-5: 2015 Freeway Traffic

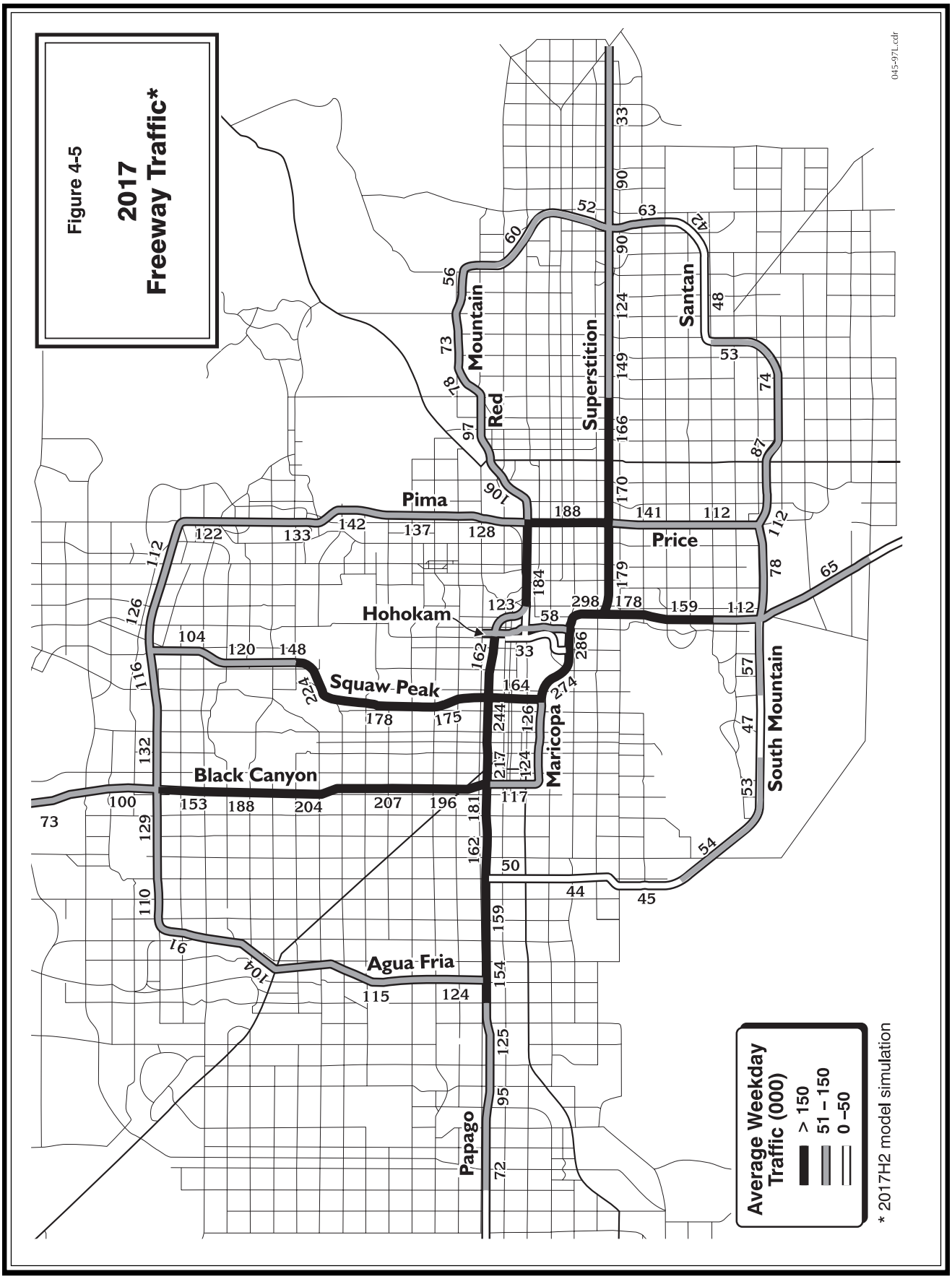


Figure 4-6: 1995 Congested Intersections

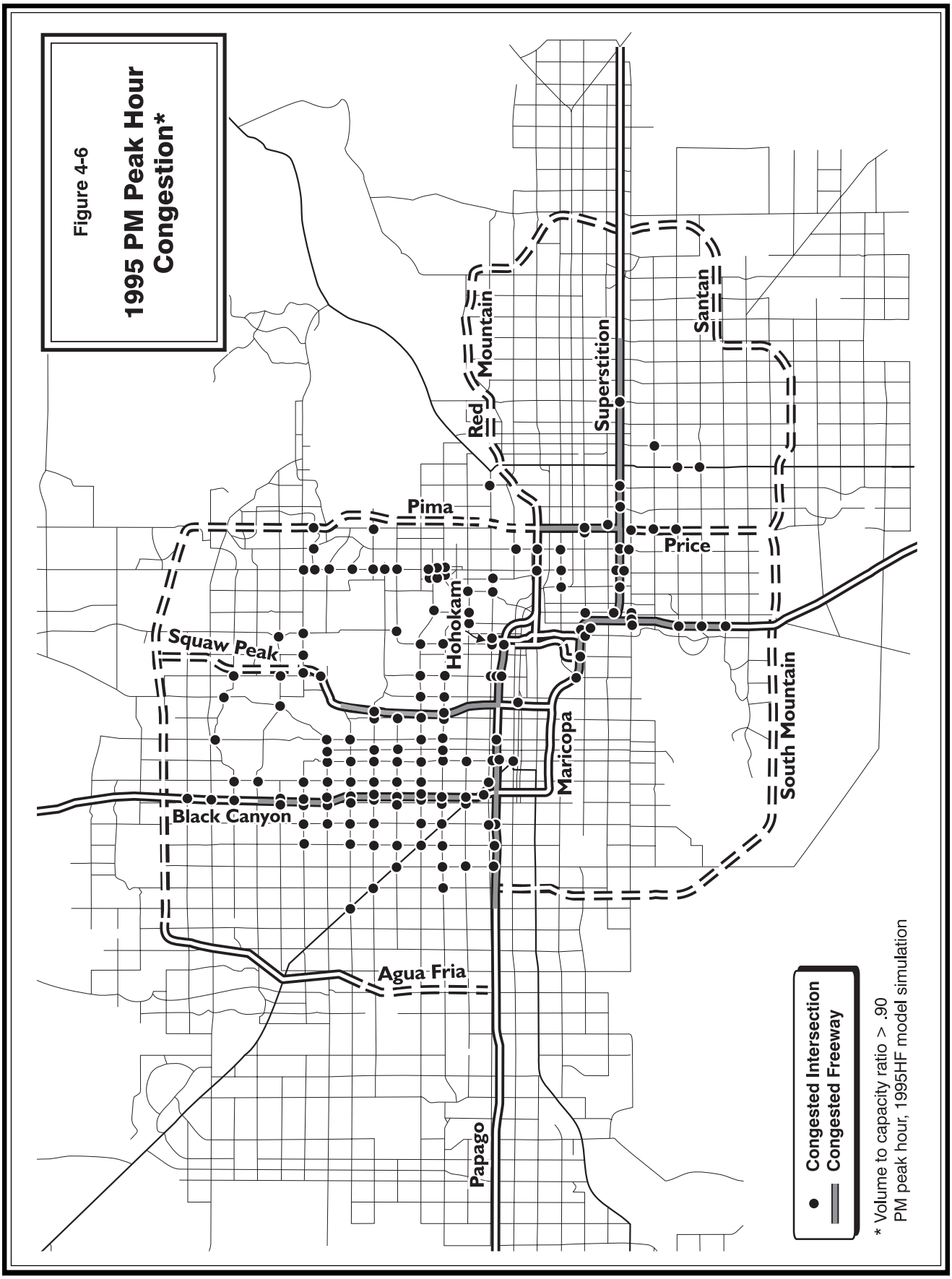
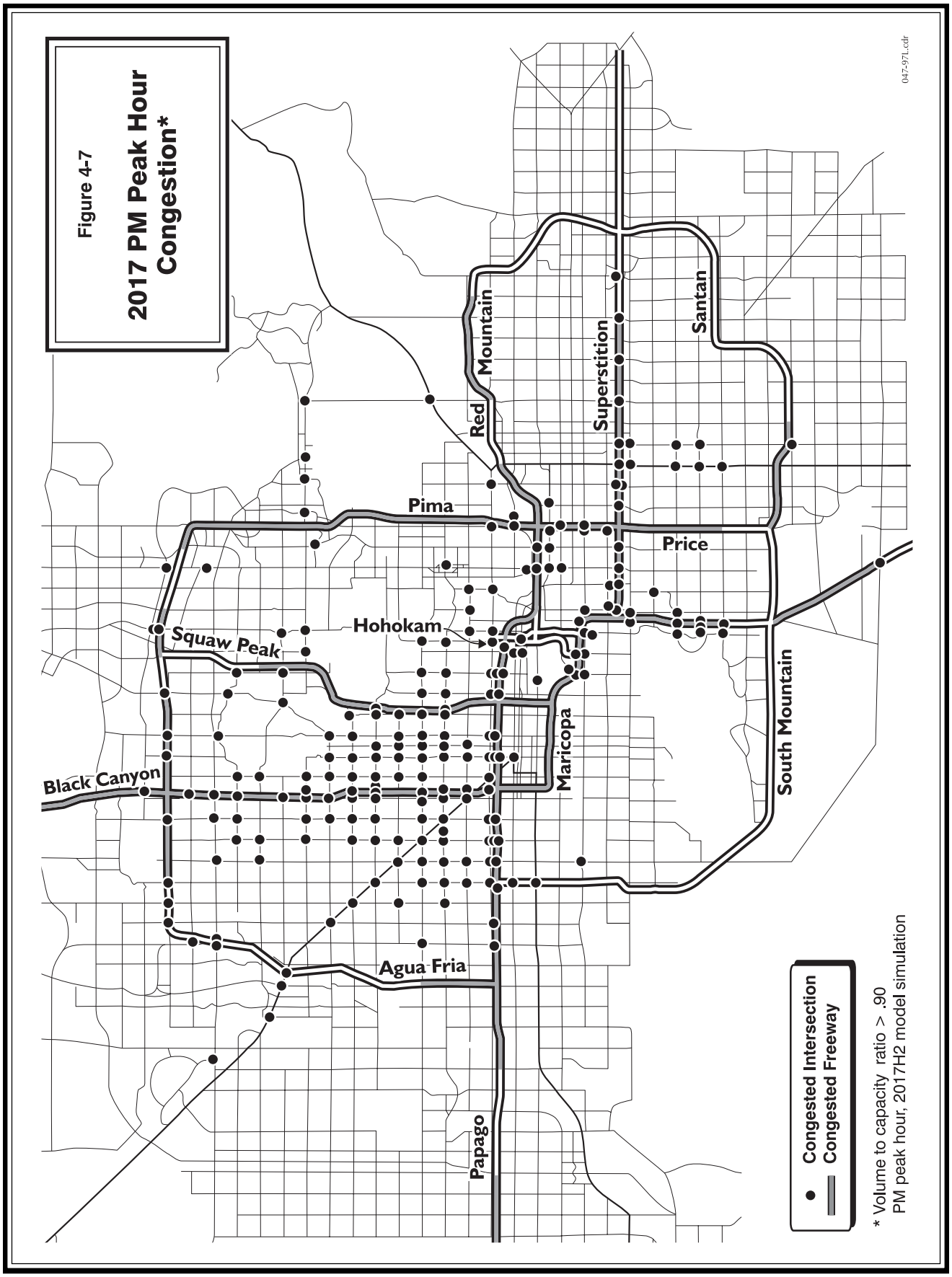


Figure 4-7: 2017 Congested Intersections



PART 2

Modal Plans

SECTION 5

Airports

MAG is the officially designated agency for regional aviation system planning. The first MAG Regional Aviation System Plan (RASP) was developed in 1979, and MAG updated the Plan in 1986. In December 1993, the MAG Regional Council adopted a second Update; and in December 1996 approved a MAG RASP Implementation Study. The major findings and recommendations of the Update and the Implementation Study are noted below.

DEMAND PROJECTIONS

Airline aircraft activity at Phoenix Sky Harbor International Airport nearly doubled between 1960 and 1990, while the number of air passengers increased eighteen fold. In 1996, Phoenix Sky Harbor was estimated to have over 30 million passengers and just over 526,000 takeoffs and landings.

The aviation demand projections for Phoenix Sky Harbor are drawn from the 1993 MAG RASP Update. Projections of based aircraft and aircraft takeoffs and landings are also prepared for 16 general aviation airports. 2017 projections were estimated by extrapolating recent growth rates. New long range 2017 projections, however, will be developed in the next RASP Update scheduled to be initiated in 1999.

By 2017, it is projected that total air passengers served at Sky Harbor will exceed 56 million passengers a year, while commercial aircraft movements will increase to almost 706,000 operations.

General aviation based aircraft in Maricopa County have increased five-fold between 1960 and 1990. However, based aircraft are forecast to grow at a much slower rate over the next 20 years because of the increase in cost of owning and operating an aircraft, and the subsequent decline in the manufacture of general aviation aircraft. It is anticipated that there will be approximately 4,780 based aircraft by 2017.

UPDATE RECOMMENDATIONS

The 1993 MAG RASP Update evaluated the long-term air transportation needs in the region, and recommended improvements to accommodate future demand. The Update recommendations include, but are not limited to:

- Construct the third parallel runway and extend the north runway at Phoenix Sky Harbor International Airport.

- Develop Williams Gateway Airport as a civilian airport serving commercial carriers, cargo and general aviation.

- Construct parallel runways at Phoenix Goodyear and Glendale Municipal Airports.

- Construct runway extensions at the following general aviation airports:
  - Buckeye Municipal
  - Glendale Municipal
  - Mesa-Falcon Field
  - Wickenburg Municipal

- Identify and protect potential new Visual Flight Rule (VFR) airport site areas to serve general aviation demand beyond 2015:
  - Northwest Phoenix/Peoria/Pleasant Valley
  - Estrella Sailport/Gila River Indian Community

- Protect the mission of Luke Air Force Base by establishing procedures to minimize interactions with military activity.

- Maximize economic impacts for Maricopa County with Williams Gateway Airport reused as a satellite commercial service, cargo and general aviation airport.

- Support implementation of individual airport master plans.

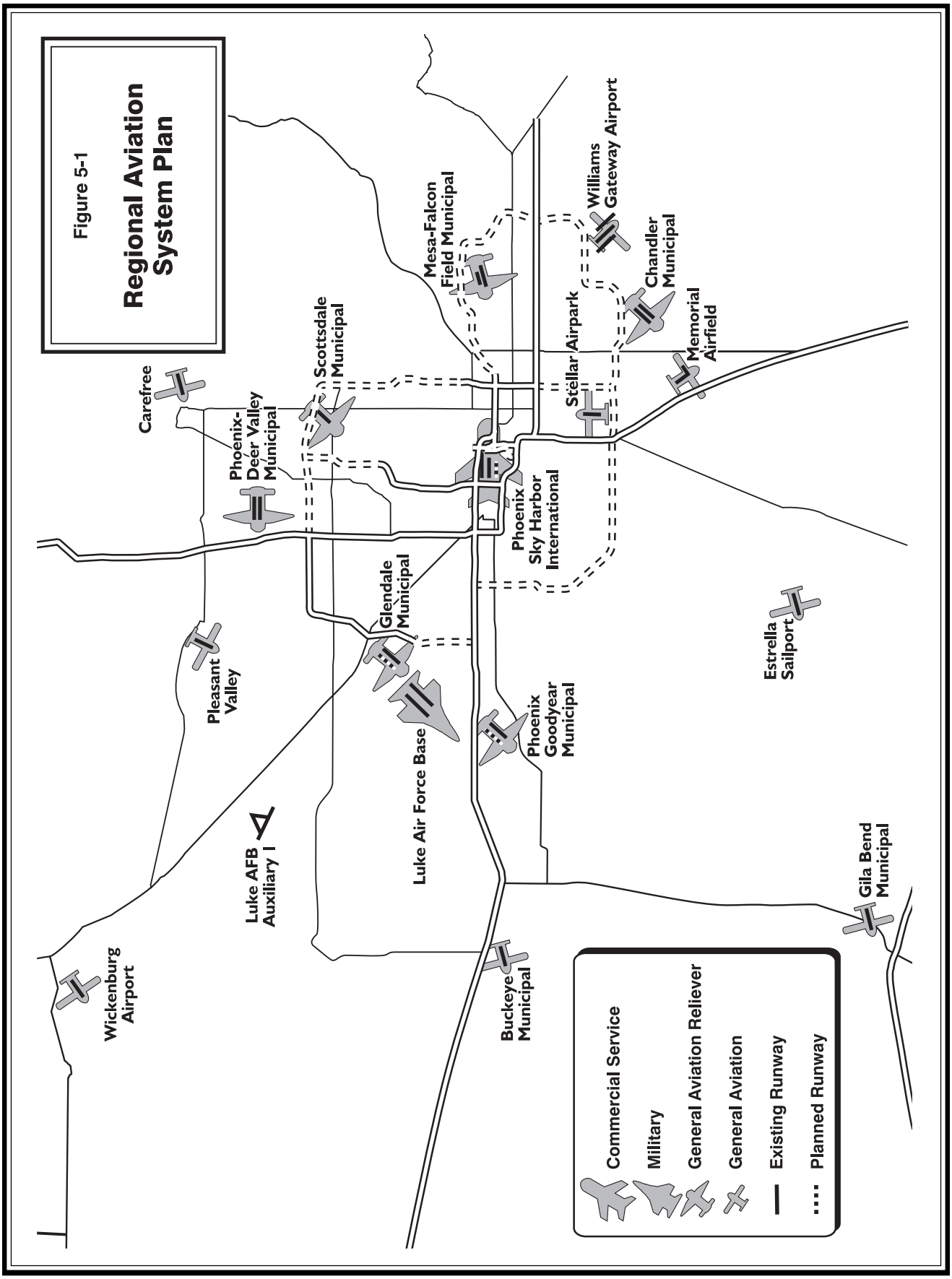
- Pursue airport demand management options.

- Accommodate general aviation demand primarily at existing publicly owned airports.

A map of the Regional Aviation System Plan is identified in *Figure 5-1*. The map classifies airports by commercial service, general aviation reliever, and general aviation categories. A general aviation reliever airport is an airport that relieves Phoenix Sky Harbor Airport by providing an alternative landing place for small aircraft. The map also identifies the location of new airport runways proposed.

An updated project listing together with costs for the MAG system airports was conducted as a part of the MAG RASP Implementation Plan, approved by the MAG Regional Council in December 1996. The project listing is consistent with the recommendations contained in the 1993 MAG RASP Update, but the costs are updated, and more projects earmarked for strictly local funding are identified. These revised costs and projects are identified in the following funding plan.

Figure 5-1: Regional Aviation System Plan



FUNDING PLAN

To implement the Update recommendations a funding plan was developed. Airport improvement costs were estimated in 1997 dollars as noted in *Figure 5-2*.

Of the approximately $857 million needed in airport development projects, $607 million would be eligible for federal funds, $26 million would be eligible for state funds, $192 million would be required from local sponsors and $112 million would be required from private and other sources (e.g., airlines, developers, non-aviation government agencies, fixed base operators).

This assumed federal Airport Improvement Program (AIP) program continues through the 2017 planning period at an annual national funding level of $2 billion, and State airports continue to receive between $30 and $50 million annually in AIP funds. This generates an estimated $118 million in entitlement funds for Phoenix Sky Harbor International, Williams Gateway and Scottsdale Airports; and between $156 million and $338 million in discretionary funds that can generally be used at any eligible airport.

An estimated $1.0 billion in Passenger Facility Charges (PFCs) could be generated at Phoenix Sky Harbor International and Williams Gateway Airports though 2017. It is anticipated that Scottsdale Airport will also be eligible to apply for PFC revenues. The effects of imposing PFCs for use at eligible airports and the additional AIP funding that may be available for other airports in the Region for airport development would be significant.

Assuming the Arizona Department of Transportation funding level continues at $10 to $12 million annually, and assuming the Region receives one-half the State's total, an estimated $100 million to $120 million could be made available from the State program to airports in the MAG Region from 1997 through 2017.

Figure 5-2: Regional Aviation System Funding Plan

Regional Aviation System Funding Plan (in millions of 1997 dollars)					
PHASE	**LOCAL**	**STATE**	**FEDERAL**	**OTHER**	**TOTAL**
Phase I	$103	$17	$351	$71	$542
Phase II	39	4	77	18	138
Phase III	50	5	99	23	177
Total All Phases	**$192**	**$26**	**$527**	**$112**	**$857**

IMPLEMENTATION

Subsequent to the approval of the MAG RASP Update in December 1993, two major projects that were recommended have either been implemented or are in the implementation phase. In March 1994, Williams Air Force Base was opened to civilian use and designated Williams Gateway Airport. In addition, the Environmental Impact Statement for the third runway at Sky Harbor and the extension of the north runway were approved. It is anticipated that the third runway at Phoenix Sky Harbor will be operational in 1999.

To facilitate the implementation of other recommendations in the MAG RASP Update, the MAG Regional Council approved a MAG RASP Implementation Study in December 1996. That study:

1. Created an airport database and accompanying sketches to facilitate maintaining data on MAG airports.

2. Established a Consolidated Airport Capital Improvement Program (CACIP) along with generalized priorities by project category. While this CACIP did not change any of the recommendations in the MAG RASP Update, it does include a more extensive list of projects that are based on local needs and are not eligible for federal or state funds. It also includes more up-to-date cost estimates. The results of the CACIP are included in the funding program.

3. Assessed intermodal access to airports.

4. Prepared computerized noise contours and superimposed them over existing and general plan land use coverages.

In 1996, MAG staff also worked with the MAG Building Codes Committee to develop a sound attenuation ordinance for the area around Luke Air Force Base. This ordinance will help meet one of the objectives of the MAG RASP -- to preserve the military mission of Luke Air Force Base -- by reducing interior noise levels of new residences constructed within the noise contours of Luke Air Force Base.

The model ordinance was approved by the MAG Regional Council in April 1996 and subsequently several member agencies have adopted ordinances based on that model ordinance. These members include, El Mirage, Maricopa County, Goodyear and Glendale.

In 1997, MAG initiated an operations traffic count at non towered airports in the region and updated the consolidated Airport Capital Improvement Program.

SECTION 6

Bicycles

An initial bicycle plan for the MAG region was developed in 1991, and this plan was subsequently incorporated into the MAG Long Range Transportation Plan by official action in July, 1992. An update of the plan is currently underway. This section provides an overview of the MAG Regional Bicycle Plan as well as bicycle improvements implemented in recent years.

REGIONAL BICYCLE PLAN

The MAG Regional Bicycle Plan identifies a planned regional bikeway system which includes both on-street and off-street facilities. The Plan also includes a bicycle policy statement consisting of four overall goals and numerous objectives designed to improve the viability and safety of bicycling as an alternative to motor vehicle use. The four major goals in the Plan address the areas of engineering, education, enforcement, and promotion:

- To provide for bicycle facility needs in transportation programs and projects.
- To educate bicyclists and motorists in order to increase safety on shared roadways.
- To improve enforcement of traffic laws in order to increase bicycle safety.
- To promote public awareness of bicycling as a transportation alternative.

In addition, the Regional Bicycle Plan also addresses funding and implementation needs, design guidelines, and areas for potential improvement in the consistency and clarity of local ordinances pertaining to bicycle use.

A major focus of the MAG Regional Bicycle Plan is the specification of a planned system of bikeways providing long interconnected routes for bicycle travel within or through the region. The initial Plan adopted in 1992, includes a 662 mile on-street system. An additional 80 miles were identified during the update process and included in the planned regional route system.

Figure 6-1 shows the Regional Bicycle Plan, including the initial Plan and the additional adopted routes. The on-street system is intended for use by competent bicyclists who have the knowledge and skills to operate a bicycle safely in traffic.

Currently, 126 miles of striped or marked bike lanes have been completed along the regional on-street system. An additional 40 miles of the system exist as signed bicycle routes. The estimated cost of completing the 742 mile on-street system is $50-60 million, which does not include acquisition costs of additional right-of-way along routes where it is required.

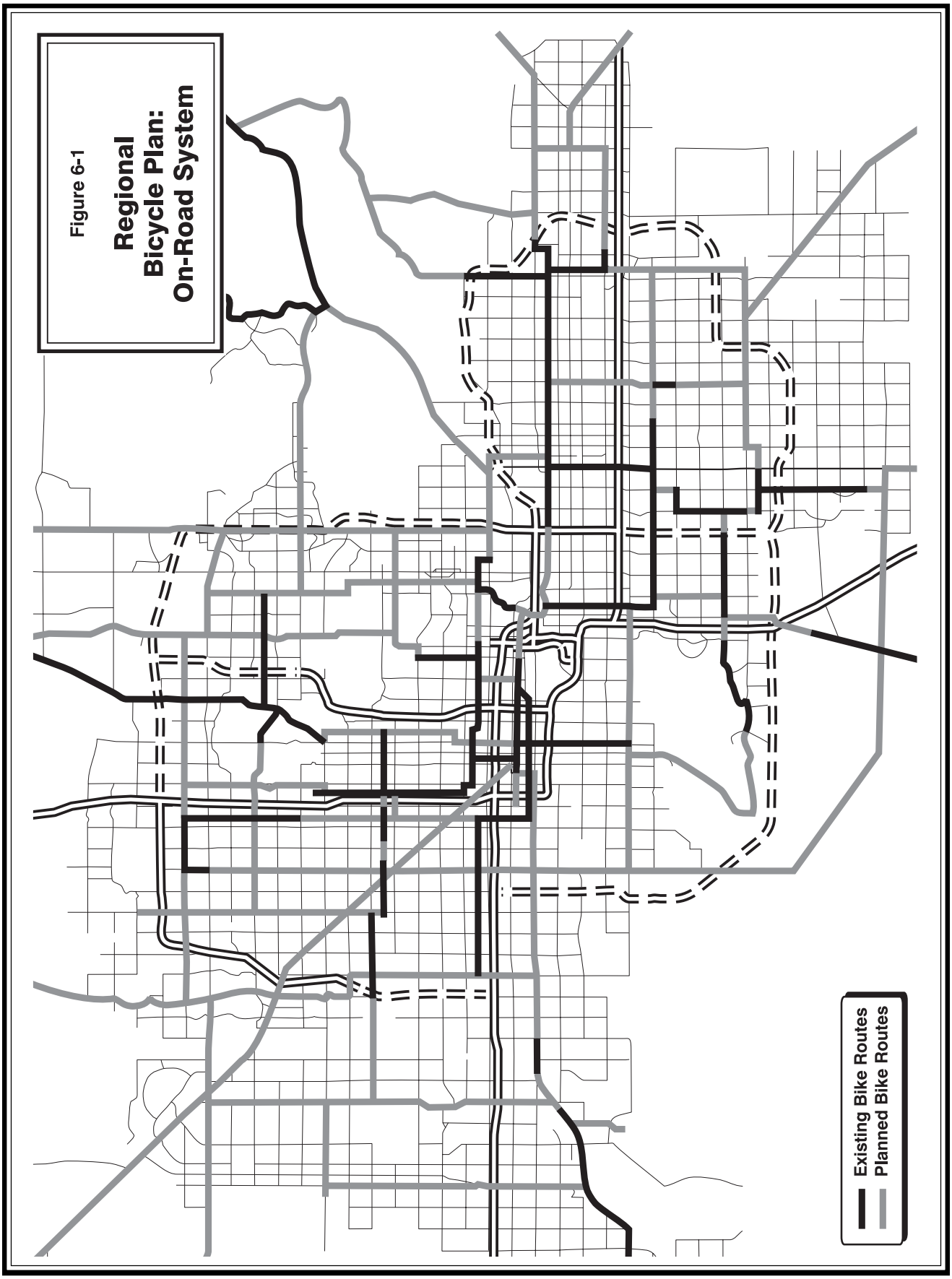
To supplement the on-street system, the Regional Bicycle Plan identifies a 381 mile off-street system which generally lies along canal and river banks in the urbanized area and the Central Arizona Project canal to the north and east. The off-street system could be used by any bicyclist but would be especially suitable for recreational riders and others less accustomed to riding in motor vehicle traffic. The MAG Regional Bicycle Plan also relies upon, but does not specify, a large number of shorter, local bicycle routes designed to allow local trips within individual communities.

BICYCLE IMPROVEMENTS

Increased impetus for the development of bicycle facilities has been provided through the 1991 Intermodal Surface Transportation Efficiency Act. Under this legislation, bicycle projects are eligible to receive federal transportation funding through a number of programs. Since fiscal year 1993, MAG has annually allocated federal funds for bicycle projects. This has facilitated the completion of approximately 42 miles of new bikeways along the regional on-street system through 1996.

Project funding under the various ISTEA programs is implemented by MAG and the Arizona Department of Transportation through the annual five-year programming process. The main funds used for such projects are Congestion Mitigation and Air Quality (CMAQ) funds and the portion of Surface Transportation Program (STP) funds reserved for Transportation Enhancement activities. In addition, most MAG member jurisdictions have been actively implementing new local bicycle facilities over the past several years. Funding for these bikeways comes primarily from Highway User Revenue Funds and General Funds.

Figure 6-1: Regional Bicycle Plan: On-Road System



SECTION 7

Demand and System Management

Transportation Demand Management (TDM) Programs encourage reductions in travel demand, while Transportation System Management (TSM) programs better manage existing traffic flows within the transportation system. These programs also promote alternative modes of travel including carpooling, vanpooling, transit usage, walking and bicycling, and alternative work schedules including telecommuting and compressed work schedules. The following sections describe a number of TDM and TSM programs which are part of the MAG LRTP. This section also addresses Intelligent Transportation Systems (ITS).

RIDESHARE PROGRAMS

MAG transportation funds support the Regional Ridesharing Program and provide partial support to the Capitol Rideshare Program. The Regional Ridesharing Program supports efforts to share an automobile ride and to use alternative modes of transportation throughout the MAG area. This program is administered by the Regional Public Transportation Authority (RPTA), or Valley Metro.

One of the services of the Regional Ridesharing Program is a computerized ridematching program that provides commuters interested in carpooling or vanpooling with a list of potential partners. Transit information is provided to those interested in receiving bus schedule information as well. Another key role of the Ridesharing Program is to assist employers of 50 or more employees to meet

the goals of the County Trip Reduction Program through the provision of support services and programs. In addition, RPTA coordinates the area wide public awareness program, known as the Clean Air Campaign, that supports the mandatory employer efforts of trip reduction and encourages the general driving public to reduce vehicle trips.

For many years before the enactment of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), several demand management programs were operational in the MAG region. The regional carpool/vanpool matching program, sponsored by MAG, was initiated in 1973 for the purpose of reducing energy consumption during the "energy crisis." The Regional Ridesharing Program has been expanded significantly since 1987 as an adopted air pollution control strategy for carbon monoxide, ozone, and particulate matter in the State Implementation Plan. Since 1986, the Regional Rideshare Program has been administered by the RPTA. The state rideshare program (Capitol Rideshare) offers carpool matching and other rideshare services to all state employees.

CLEAN AIR CAMPAIGN

The Clean Air Campaign, an area wide public awareness program, is designed to reduce unnecessary vehicle use and has been ongoing since 1987, when it was initiated by the Phoenix Chamber of Commerce. The Clean Air Campaign is a public/private partnership with sponsors that include the Phoenix Chamber of Commerce, the Arizona Departments of Environmental Quality and Transportation, Maricopa County, MAG and the RPTA. A working group of sponsors provides direction to the campaign and was expanded in 1996 to include additional community organizations like the Lung Association and Valley businesses. A newly formed Executive Committee was also formed in 1996 that is co-chaired by two Valley chief executives. This Executive Committee provides the necessary leadership to encourage business participation and initiatives.

The Campaign has urged residents to not drive on at least one day per week, by carpooling, taking the bus, or otherwise avoiding solo commuting one day each week as a voluntary "no drive day" campaign. In the past, the campaign has concentrated its media campaign during the critical six to eight week carbon monoxide pollution season from mid-November to mid-January due to a restricted budget. During the summer of 1996, a summer ozone media campaign was launched to address the critical need to avoid a reclassification related to meeting ozone standards.

TRIP REDUCTION PROGRAM

Air quality improvement was the primary factor leading to the establishment of the Maricopa County Trip Reduction Program (TRP). Mandated by Arizona legislation in 1988, employers with 100 or more workers at a site began participating in this program in 1989. At that time, approximately 500 employers and schools participated in this program representing over 350,000 employees and students. Participating employers are required to conduct an annual survey of the commuting modes of their employees, and prepare and implement a travel reduction plan to reduce the number of Single Occupant Vehicle (SOV) trips or vehicle miles traveled (VMT).

Originally, the State law established trip reduction goals of five percent for the first and second year of participation by an employer. In implementing the program, it was determined that approximately 30 percent of the work force in the region was covered by these requirements. It was anticipated that full implementation of the requirements would reduce regional VMT by 0.8 percent from projected levels for 1995.

The 1988 Arizona air quality legislation also required Maricopa County to enact an ordinance in 1992 to prescribe reduction goals and employer participation for subsequent years. On October 5, 1992, Maricopa County enacted an ordinance that strengthened the Trip Reduction Program by providing third, fourth and fifth year travel reduction goals of five percent annually, and by expanding the ordinance to apply to employers with 75 or more employees at a work site. Since the program expanded, over 800 employers have become involved. It is estimated that the strengthened Trip Reduction Program would reduce regional VMT by 1.8 percent from projected levels for December 1995, as needed to meet carbon monoxide emission reduction goals.

In November 1993, a special session of the state legislature passed an air quality bill that further expanded the TRP to include employers of 50 or more employees and increased the goals to ten percent per year reduction in SOV trips or miles traveled. Currently, over 1,250 employers are participating in the program representing about 480,000 students and employees.

In the summer of 1996, another special session of the legislature passed an innovative enhancement to the Trip Reduction Program whereby employers will be allowed to implement several new "flexibility" strategies to meet their TRP goals. The majority of employers have not met the annual goals of 10% reduction in SOV trips or miles. Now, under these flexibility provisions, employers will have an expanded menu of measures for implementation including reduction of business-related vehicle trips, off peak hour commuting, reduced use of other gasoline powered equipment and stationary source emission reductions.

VANPOOL PROGRAM

The RPTA has provided a third party vanpool service to interested commuters since 1987. The number of vanpools has increased 57% over the past two years, from 69 to 108 vanpools in operation (as of December 1996). Over 515,000 passenger trips per year will be made by vanpool. RPTA contracts with a third party private vanpool firm to provide vehicles, insurance, fleet services and billing.

The monthly vanpool passenger fares (drivers usually ride free) cover all of the operation costs and a portion of the capital costs. In fiscal year 1996, the vanpool program budget was $560,000. Federal Transit Administration (FTA), Section 9 capital cost of contracting funds are used to help pay this subsidy. Many employers, especially those who do not have good or any bus service, help promote vanpooling as part of their Trip Reduction Program plans and also subsidize employee vanpool fares that further encourage employee participation by keeping the fares low. As part of the RPTA vanpool program, a Guaranteed Ride Home Program is provided that offers up to 2 free (taxi) rides home per year.

TRANSPORTATION MANAGEMENT ASSOCIATIONS

Another approach to travel demand management is the formation of Transportation Management Associations (TMAs) and employer transportation networking groups. Through these formal and informal associations, employers share resources to promote alternative mode use, improve mobility, or implement trip reduction programs in their local areas. TMAs are formally organized and incorporated with elected officers, bylaws and dues-paying members. The networking groups are less formal in their organization and not incorporated.

As of December 1996, there were two formal TMAs and twelve transportation networking groups in the MAG region. Together, these employer groups involve over 240 employers and about 110,000 employees. Most of the areas in the region with major employment concentrations are now served by TMAs or network groups. RPTA provides staff support to the twelve informal network groups in the Valley.

TELECOMMUTING

With the advent of new technological devices and the change to a service/information-based economy, a growing number of employers are allowing their employees to work in a location other than the central office. With telecommuting, employees can be linked to the central office by a personal computer, or fax machine. A random survey of Valley residents in 1996 indicates that over 40 percent of households in Phoenix own a personal computer (*1996 Clean Air Campaign and TRP Survey*, RPTA, Spring 1996). Also, employees may telecommute either on a full-time or on a part-time basis, with most telecommuters working at or near home one or two days per week. By working at home, or at a satellite work center, the commute trip is eliminated or shortened.

Arizona has become a leader in the promotion of telecommuting. The State of Arizona and AT&T started some of the first formal telecommuting programs in the state with a joint pilot program in 1990. RPTA started promoting telecommuting in 1992. RPTA provides support and technical assistance to employers to help them start telecommuting programs including training workshops and sample policies and agreements, management briefings and one on one assistance. The Arizona Telecommuting Advisory Council also provides networking and support to employers in the Phoenix area.

Opportunities to reduce trip making in this category would appear to be substantial. The random survey of Valley residents in 1996, mentioned above, also indicates that one-third of all workers (and 40 percent of workers at large firms) indicate that their jobs would allow them to telecommute at least one day per week. Also, according to Maricopa County TRP data, the number of employers with telecommuting programs has increased more than 400% in the past two years, with over 280 Valley employers indicating they allow some form of telecommuting.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) is the application of advanced information processing and communications, as well as sensing and control technologies to surface transportation. The objective of ITS is to promote more efficient use of the existing highway and transportation network, increase safety and mobility, and decrease the environmental costs of travel.

ITS Strategic Plan and Model Deployment Grant. In 1996, the MAG Regional Council adopted a strategic plan for ITS in the MAG region. The ITS strategic plan identifies a set of incremental projects to achieve the required ITS services and recommended system architecture. Based on needs of users of the transportation system developed utilizing a public outreach program, a range of alternative methods of developing and maintaining an ITS were evaluated and recommended. The improvements related to ITS technologies recommended include:

- Upgrade field equipment to enhance existing traffic monitoring capabilities.
- Upgrade data processing systems at local traffic operations centers (TOC's) to improve central monitoring and control capabilities.
- Implement the necessary communications infrastructure to provide the necessary communications to/from the field elements and between individual TOC's.
- Improve coordination between the TOC's and transit management centers.

The strategic plan was developed by a steering committee with a wide range of representatives from the public and private sector. This committee was updated and incorporated into the MAG ITS Committee in October, 1996 to address regional ITS issues on an ongoing basis.

Also in 1996, ADOT was the recipient of a $7.5 million federal grant for an Intelligent Transportation Model Deployment Initiative which will be largely focused in the MAG region. The grant funds will be used to integrate the existing intelligent transportation infrastructure into a regional system, to establish a regional integrated traveler information system for the multimodal traveler, and to expand the transportation management system for the region. The ultimate system will provide traveler information to almost everyone requiring current traffic condition information and facilitate signal coordination across jurisdictional boundaries to provide improved safety and regional mobility.

Freeway Management System. The ADOT Freeway Management System (FMS) is currently being developed. Phase I of the FMS is on-line, covering 29 miles of I-10 and I-17. The initial phase includes 19 variable message signs, 39 ramp meters, 29 CCTV cameras, 1,036 loop detectors, 403,000 linear feet of fiber optic cable, and 810,000 linear feet of electrical conduit. Ultimately 55 miles of freeway are programmed to be covered by the FMS. Phase II will cover 11 miles, followed by implementation of the remaining 15 miles. Scheduled technologies include an incident detection system routed to the Traffic Operations Center.

The RAPID deployment project is a public/private partnership where accurate, real-time traffic information is gathered by the ADOT FMS and private

airborne traffic reporters. The traffic information can then be coded and sent to smart information kiosks and in-vehicle devices by the KSLX radio station.

Transit. The Phoenix Transit "Bus Card Plus" program uses employer-issued debit cards which are billed monthly to an account. The program has been implemented on all fixed route buses. Over 250 employers and 40,453 employees use these cards. In May 1995, Phoenix Transit began accepting Visa and MasterCard at the fare box, and as of December 1996 approximately 7,674 credit card transactions per month have been processed.

In November 1995, the City of Phoenix Public Transit Department and the Phoenix Union High School District (PUHSD) began a program involving a single photo identification card that enables students to access PUHSD campuses and services, and pay for lunches and bus fares. Students swipe the cards through the magnetic card readers on the bus fare boxes, which records the transaction. The information is compiled and the school is billed monthly. It is expected that nine schools will have implemented this program by the beginning of the 1997-1998 school year.

Signal Coordination. Many municipalities in the region are currently involved in efforts to improve traffic signalization to more effectively manage the flow of traffic. The City of Tempe has a five-year Strategic Plan for their traffic signal system. The third upgrade of the traffic signal system in the City of Phoenix is in the final design stage. The City of Glendale is in the process of planning and designing a traffic signal control system. The FY 1997-2001 TIP allocations for traffic signals is expected to be approximately $2 million in MAG Congestion Mitigation Air Quality funds. In addition, both the cities of Tempe and Phoenix are performing studies to develop systems to manage special events traffic. Incident detection and management will be part of these systems.

The Rhodes-Integrated Traffic Management System (ITMS) project is being conducted by the Department of Systems and Industrial Engineering at the University of Arizona with funding provided jointly by MAG and ADOT. The focus of the project is to coordinate the control of the freeway-arterial interchange signals and adjacent ramp-meters for optimal performance. Specifically, the project will develop control algorithms for freeway/surface interchanges and demonstrate and evaluate these algorithms using a computer simulation of actual conditions on the US 60 corridor.

INTERSECTION AND INTERCHANGE IMPROVEMENTS

Several efforts are underway throughout the region to improve existing intersection and interchanges. These efforts are incorporated into the Plan to improve the existing system performance.

Traffic Interchange Study. In February, 1996 ADOT completed a study of all traffic interchanges on the statewide highway system. The study identified roadway geometric conditions, capacity deficiencies, safety and multi-modal factors. All of the interchanges were evaluated using these criteria and ranked using a benefit/cost process. The potential projects identified as a result of this study were separated into three types: Minor, Intermediate and Full Reconstruction. Minor and Intermediate projects were defined based on cost; over $200,000 was labeled intermediate and under $200,000 was labeled minor.

Nine of the interchanges identified as needing reconstruction are in the metropolitan area and currently none of these have been recommended for programming. Nine of the 19 intermediate improvements and approximately half of the 183 minor improvements are in the metropolitan area. Current recommendations for programming are that minor projects do not require additional scoping and will have over $4.1 million programmed in FY 1998 and 1999 for design and construction. Intermediate projects will have $425,000 allocated for scoping in FY 1998 and $13.2 million allocated for design and construction in FY 1999, 2001 and 2002.

HOV Interchange elements. ADOT is currently completing HOV studies on the Superstition and Squaw Peak freeways and programming decisions await the results. There are no known plans to add any HOV interchanges in the current program.

Low Cost Projects. The MAG Regional Council has directed staff to examine problematic portions of the completed freeway system and to identify low cost methods to improve traffic flow. A subcommittee of local jurisdictions and State representatives identified 132 potential projects, including many from the ADOT Traffic Interchange Study mentioned above, analyzed and ranked them. The MAG Regional Council recommended a final list of 18 low cost projects to the State Transportation Board for funding from ADOT discretionary funds. An increase in the low cost discretionary budgets for the ADOT Phoenix Maintenance and Construction Districts to $1.5 million was also recommended.

FUNDING

Transportation Demand Management programs are projected to continue at current levels for the next several years based on current or similar funding sources. Adjustments and potential expansions to these programs will be continually assessed in light of performance and the availability of funding.

Transportation System Management efforts will also continue into the future. In 1996, there has been an increased emphasis in funding TSM projects from a variety of sources. ADOT has received a $7.5 million model deployment grant from the federal government for ITS. The cities continue commitments to improve signal coordination while ADOT has programmed additional funding for the Freeway Management System. ADOT has completed a study of grade separated traffic interchanges throughout the state and has made a financial commitment to include identified minor and intermediate cost projects in the five year program. Finally, local jurisdictions have shown an increased interest in applying MAG Congestion Mitigation Air Quality (CMAQ) funds to intersection and traffic signal improvements.

SECTION 8

Freeways

MAG is responsible for developing freeway plans for the region. ADOT is responsible for constructing and maintaining freeways. This section first provides a historical perspective. Then plans, priorities and funding for new freeways are discussed. Finally, plans and funding for improvements to existing freeways are described.

HISTORICAL PERSPECTIVE

1960. In 1960, the Arizona State Highway Commission, Maricopa County and the City of Phoenix, commissioned a study entitled, A Major Street and Highway Plan, Maricopa County, Phoenix Urban Area. This is the first freeway plan for the Valley. It included the Black Canyon, Maricopa, Superstition, Papago, Outer Loop, Paradise, Squaw Peak, portions of Grand and portions of the Red Mountain.

1983. Between 1960 and 1983 progress on this plan was slow. The Black Canyon and Maricopa Freeways were completed, while the Superstition and Papago were nearing completion. During this period the right-of-way for the Outer Loop was not protected. As a result, in the early 1980's studies were completed to relocate the Outer Loop outward to vacant land. In this period portions of the Paradise, Squaw Peak and Red Mountain were removed from the Plan and these facilities were no longer connected to the Outer Loop.

1985. In 1985, MAG completed a major update of the Regional Freeway Plan – it greatly expanded the miles of planned freeways. In the central area, the Squaw Peak, Paradise and Red Mountain were reconnected to the Outer Loop and the South Mountain Parkway was added. In the East Valley, a loop facility (consisting of the Red Mountain and Santan) was added. In the West Valley, the Estrella Freeway and Grand Expressway were added to the Plan. In October 1985, the voters of Maricopa County approved a half-cent sales tax for 20 years to complete this plan.

1994. Since 1985, major progress has been made toward completing planned freeways. The City of Phoenix completed the Squaw Peak to Glendale Avenue, ADOT completed the Superstition Freeway, and Interstate funds were used to complete the Papago. Sales tax funds have been used to complete portions of the Pima, Agua Fria, Red Mountain, Hohokam and Squaw Peak.

However, between 1985 and 1994 a funding shortfall developed. As a result of a long downturn in the economy revenues were less than projected. Also, more detailed engineering, extension of time horizons and community input increased planned freeway costs. In order to offset this shortfall and to improve transit services Proposition 400 was presented to the voters of Maricopa County. This Proposition would have completed planned freeways by 2015 and doubled bus services. The financial mechanism included a new half-cent sales tax split 50/50 between freeways and transit, and a 10 year extension of the existing half-cent sales tax for freeways. This proposition was defeated in November 1994.

1995. The Intermodal Surface Transportation Efficiency Act of 1991 requires a balanced funding plan. As a result of the defeat of Proposition 400 and a proposed plan by the Governor, the MAG Freeway Plan was scaled back. Planned freeway corridors were deleted and design changes were made. Corridors removed from the Freeway Plan included the Paradise Parkway, Grand Expressway and Estrella Freeway.

1996. A sustained economic recovery and improved forecasting methods have resulted in a significant upward revision of sales tax forecasts. Also, in 1996 the design concept of the South Mountain was changed from a freeway to an at-grade expressway. As a result of these changes the entire MAG Long Range Transportation Plan for new freeways can now be completed with existing revenue sources.

PLANNED NEW FREEWAYS

A map of the existing and planned freeway system is shown in *Figure 8-1*. This section focuses on new freeways approved for sales tax funding.

Corridor Improvements. Since the passage of Proposition 300 in 1985, 40 miles of sales tax funded freeways have been completed as listed in *Figure 8-2*. After corridor deletions in 1995, 115 miles of new controlled access highways remain to be completed. As of March 1997, the following major freeway sections are under construction.

- Agua Fria, I-17 Interchange.
- Pima, Thomas Road to McDonald Drive.
- Red Mountain, Pima to McKellips Road.
- Squaw Peak, Shea Boulevard to Bell Road.
- Price, Superstition Interchange.

Design Concepts. Between 1985 and 1990 design concepts were developed for all planned corridors. All facilities were planned as fully access controlled freeways. Interchanges are usually every mile and initial construction is usually six lanes with the potential of widening to eight.

Figure 8-1: Freeway/Expressway Plan

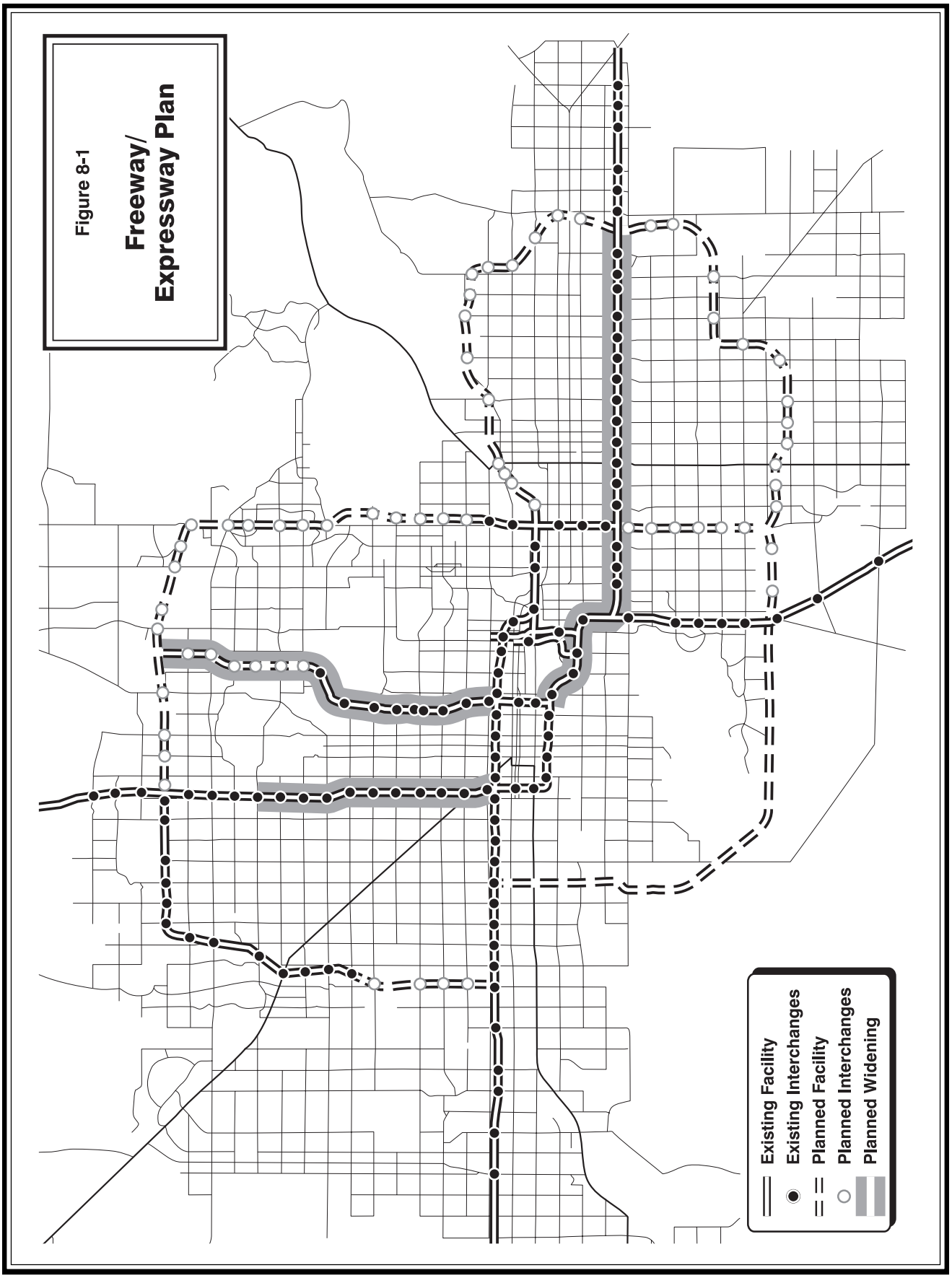


Figure 8-2: Proposition 300 Freeways and Expressways

Corridor	Existing Miles	Planned Miles	Total Miles
Agua Fria Freeway	16	6	22
Hohokam Expressway	3	0	3
Pima Freeway	3	25	28
Price Parkway	3	7	10
Red Mountain Freeway	10	22	32
Santan Freeway	0	24	24
Sky Harbor Facilities	2	1	3
South Mountain Parkway	0	23	23
Squaw Peak Parkway[1]	4	6	10
Total	41	114	155

1. This mileage estimate does not include five miles of freeway completed by the City of Phoenix.

In 1995 the number of initial lanes to be constructed for several low volume sections of the Squaw Peak, the Santan and the Red Mountain was reduced from six lanes to four lanes. Due to increased funding projections in 1996, the number of initial lanes to be constructed has been restored to six lanes on the following freeway sections:

- Santan Freeway from Interstate 10 to Arizona Avenue.
- Red Mountain from Country Club Drive to Gilbert Road.
- Squaw Peak from Bell Road to the Pima.

The 1995 scope reductions also limited freeway landscaping to decomposed granite in new freeway construction. It is anticipated that increased funding levels will allow the partial restoration of landscaping design concepts. The exact nature of this restoration is currently under consideration.

Grand Avenue. To address pressing air quality and congestion problems, the Freeway/Expressway Plan has been expanded to include overpasses on Grand Avenue at Thomas Road and at Camelback Road. The construction of these two overpasses will remove two six leg intersections that severely constrain traffic flow on Grand Avenue, Thomas Road, Camelback Road, 27th Avenue and 43rd Avenue. These two intersections contribute to making this area a significant regional problem area for violation of the carbon monoxide standard. The Grand Avenue corridor is currently under study for potential re-addition to the Freeway/Expressway Plan.

South Mountain. The South Mountain was initially planned as a freeway. However, to complete the system within available funds the design concept has been changed to an at-grade expressway facility that will use planned and existing roadways to provide an alternative access route around South Mountain. The exact concept of this expressway is currently under consideration in a cooperative effort between ADOT and MAG member agencies. As a result of the design change the name of this facility is changed from "South Mountain Freeway" to "South Mountain Parkway".

The South Mountain corridor has been designated as a potential toll facility. Should a viable tollway proposal be developed and accepted, the design concept and alignment for the South Mountain could change.

FUNDING PLAN FOR NEW FREEWAYS

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires MAG to prepare a financial plan for the MAG LRTP based on existing and proposed funding that can reasonably be expected to be available for transportation use. The funding plan for new freeways in the MAG area is documented in *Figure 8-3*. This plan is consistent with the ADOT FY 1998-2006 Life Cycle Program and the ADOT Regional Freeway System January 31, 1997 Life-Cycle Certification. This funding plan is based on a trend concept as detailed in *Appendix C*.

Funding Sources. The funding plan for new freeways is based on the following currently committed funding sources and does not require new sources of funding to complete the system.

- Half-cent sales tax funding is from a regional sales tax in Maricopa County. This tax was approved by the voters in October 1985 and is scheduled to expire on December 31, 2005.

- Fifteen percent funding is a portion of ADOT Highway User Revenue Funds (HURF) that is allocated for the construction of highways in the Phoenix and Tucson metropolitan areas. Legislative adjustments in 1996 altered this percentage to 12.6 percent without changing the total amount of funds available. An additional 2.6 percent of ADOT HURF is committed by State Transportation Board policy.

- MAG Federal funding refers to funds that MAG is responsible for programming for transportation projects in cooperation with ADOT. These funds are divided into two categories – Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funds. Through FY 2005, up to 70 percent of the combined total of these two funding categories is reserved for new freeway projects, thereafter MAG Federal funding for new freeways drops to 50 percent.

- ADOT discretionary funding includes ADOT HURF and federal funding applied to new freeways that are not committed by statute or policy. The 1998 ADOT Life Cycle Program includes $71.5 million in ADOT Discretionary funds for new freeways.

Costs. Costs for this funding plan are based on the latest ADOT certified costs. Since the 1996 Update, costs have increased to add back lanes where needed, to restore landscaping and to add interchanges on Grand at Thomas Road and at Camelback Road. On the other hand, costs have deceased because the South Mountain corridor has been changed from a grade-separated freeway to an at-grade expressway.

Right-of-way cost estimates reflect the cost of purchasing the right-of-way today. The ADOT Life Cycle Program reserves $12 million for advance to provide for right-of-way hardships, to protection freeway alignments from the encroachment of development and to allow ADOT the ability to take advantage exceptional right-of-way values should they occur.

Figure 8-3: Funding Plan to Complete New Freeways, 1997 to 2017

Freeway Funding Plan (In Billions of 1997 Dollars)	FY 1997-FY 2010[b]	FY 2010-FY 2017[c]	**Total**
FREEWAY FUNDING[d]			
Beginning Cash Balance as of July 1, 1996[e]	$0.20	$0.00	$0.20
Sales Tax Funding[f]	0.92	0.00	0.92
15% Funding[g]	0.34	0.23	0.57
MAG Federal Funding[h]	0.35	0.09	0.44
ADOT Discretionary	0.07	0.00	0.07
Miscellaneous[i]	0.20	0.01	0.21
Total[n]	**$2.08**	**$0.33**	**$2.41**
FREEWAY COSTS[j]			
Cost Carry Foreword as of July 1, 1996[k]	$0.24	$0.00	$0.24
Agua Fria	0.14	0.00	0.14
Grand	0.12	0.00	0.12
Pima	0.41	0.00	0.41
Price	0.20	0.00	0.20
Red Mountain	0.24	0.20	0.44
Santan	0.23	0.08	0.31
Sky Harbor Expressway	0.00	0.02	0.02
South Mountain[l]	0.13	0.10	0.23
Squaw Peak	0.11	0.00	0.11
System Wide	0.06	0.01	0.07
Right-of-Way Contingency[m]	0.01	0.00	0.01
Total[n]	**$1.89**	**$0.41**	**$2.30**
BALANCE[n]	**$0.19**	**($0.08)**	**$0.11**

a. Data in this chart covers the period from July 1, 1996 through June 30, 2017.
b. Data in this column covers the period from July 1, 1996 to June 30, 2010.
c. Data in this column covers the period from July 1, 2010 to June 30, 2017.
d. Funding amounts for the period from July 1, 1996 to June 30, 2016 are based on cash schedules from the Administrative Services Division of ADOT dated January 17, 1997.
e. Beginning cash balance is the FY 1997 beginning balance from the January 17, 1997 cash flow schedule.
f. Sales tax funding approved by the voters of Maricopa County in October, 1985 and is due to expire on December 31, 2005. Amount shown is sales tax revenue plus RARF net bond proceeds, less net debt service (debt service less debt reserve earnings), less transit payment with the balance deflated to 1997 dollars.
g. The portion of HURF earmarked for controlled access highways in Maricopa County. The amount also includes the 2.6 percent of ADOT HURF that is allocated to this purpose by State Transportation Board policy. Amount shown is the HURF revenue plus HURF net bond proceeds less HURF net debt service.
h. Funds allocated to the Maricopa County freeway program from ADOT funds.
i. Includes third party payments, interest income, rental and other income.
j. Except where indicated all freeway costs are from the January 16, 1997 draft Tentative Program.
k. Estimate by the MAG Fiscal Analysis Unit pending final update of actual expenditures through November 30, 1996.
l. Includes $100 million in FY 2011-FY 2017 to complete the South Mountain from Baseline Road to Interstate 10.
m. Includes amount allocated for ROW hardship.
n. May not sum due to rounding.

PRIORITIES FOR NEW FREEWAYS

Priority Criteria. MAG freeway priorities are guided by adopted criteria and an extensive rating system. This update of priorities largely advances previous priorities as a result of additional funding. ARS 28-1597.02(B) requires MAG to adopt criteria for setting priorities for freeway construction. In March 1993, the Region Council adopted the following criteria to guide freeway development.

- Travel Demand
- Congestion Relief
- Accident Reductions
- Air Quality Improvements
- Cost Effectiveness
- Joint Funding
- Social and Community Improvements
- System Continuity and Mobility

In 1994, the State legislature added three additional criteria. These include:

- Establishment of a complete freeways system as rapidly as possible.

- Construction of segments to serve regional needs.

- Construction of segment that provide connectivity with other elements of the freeway system.

Data Organization. In the priorities analysis, data are accumulated by planned freeway section. These sections were first identified in January 1986, and with some minor modifications have been used in all subsequent priorities analysis. *Figure 8-4* lists these segments and priority data associated with them.

Quantitative Priority Measures. Quantitative priority measures are for those criteria for which quantitative data can be collected and analyzed. Specific procedures for these measures are as follows:

- Travel Demand Measure. The travel demand criteria in this analysis is approximated by projected average daily travel (ADT) on freeway and expressway sections. Travel demand data used for this measure was based on simulations of the LRTP. This simulation included all planned freeway improvements in the LRTP.

- Congestion Relief Measure. It is not technically feasible to independently estimate the congestion relief provided by each freeway segment. Therefore, the projected level of congestion in areas around freeway segments was used as an indication of the need for congestion relief. The measure used was calculated as the number of congested intersections (volume-to-capacity ratio 0.9) during the PM Peak Hour per mile within a two mile radius of a planned freeway or expressway section in a horizon year.

- Accident Reductions Measure. Freeway improvements divert traffic from arterial streets, which have relatively high accident rates, to freeways where accident rates are lower. It is not feasible at this time to forecast changes in accident rates due to freeway improvements. Therefore, current accidents are used to indicate where accident reductions are most needed. The specific measure used is the number of accidents per day per mile which occurred within a one mile radius of the planned alignment of a freeway section in 1992. The data source is the Accident Analysis Unit of the Traffic Records Branch of ADOT.

Figure 8-4: Freeway/Expressway Priority Data

Freeway/Expressway Priority Data									
Corridor	Segment	Miles[1]	Cost[2] (Millions)	Average Daily Travel[3] (Thousands)	Congested Intersections per Mile[4]	Accidents per Mile[5]	Average Carbon Monoxide Concentration[6]	Cost Effectiveness[7]	Joint Funding
Agua Fria	Northern to I-10	6.64	$130	117	0.00	0.01	4.0	$0.02	0
Grand	Thomas to Camelback	2.83	$119	42	2.12	.33	8.0	$0.12	0
Pima	I-17 to Squaw Peak	6.02	$107	125	0.17	0.03	2.0	$0.02	1
Pima	Squaw Peak to Scottsdale Rd	5.08	$47	121	0.59	0.00	2.0	$0.01	1
Pima	Scottsdale Rd to Frank Lloyd Wright	3.28	$67	115	0.61	0.02	2.0	$0.02	1
Pima	Frank Lloyd Wright Blvd to Shea	3.27	$64	124	0.31	0.06	2.0	$0.02	0
Price	Guadalupe Rd to Warner Rd	2.01	$73	136	0.00	0.20	6.0	$0.03	0
Price	Warner Rd to Santan	2.93	$71	104	0.00	0.10	2.0	$0.03	1
Red Mountain	Country Club Dr to Gilbert Rd	3.24	$56	95	0.00	0.06	3.3	$0.02	0
Red Mountain	Gilbert Rd to Bush Hwy	6.54	$90	76	0.00	0.01	2.0	$0.02	0
Red Mountain	Bush Hwy to Superstition	7.87	$101	50	0.13	0.01	2.0	$0.03	0
Santan	I-10 to Price	6.14	$115	77	0.00	0.04	2.0	$0.03	0
Santan	Price to Arizona Ave.	3.04	$58	114	0.66	0.03	2.0	$0.02	0
Santan	Arizona Ave. to Gilbert Rd	3.09	$52	79	0.65	0.01	2.0	$0.03	0
Santan	Gilbert Rd to Power Rd	7.94	$103	52	0.00	0.00	2.0	$0.03	0
Santan	Power Rd to Superstition	5.58	$78	42	0.00	0.00	2.0	$0.04	0
Sky Harbor	University Dr to I-10	0.94	$20	24	2.13	0.13	8.0	$0.12	0
South Mountain	Papago (I-10W) to Baseline Rd	6.09	$96	44	0.82	0.06	2.0	$0.04	0
South Mountain	Baseline Rd to 7th St.	10.80	$85	41	0.00	0.00	2.0	$0.02	2
South Mountain	7th St. to Maricopa (I-10E)	2.36	$56	46	0.00	0.06	2.0	$0.06	2
Squaw Peak	Bell Rd to Pima	2.24	$55	95	0.45	0.13	2.0	$0.03	0

1. Based on mileage estimates provided by ADOT
2. Based on January 22,1997 Arizona Department of Transportation Valley Project Management Section FY 1998-2006 Draft Tentative Program. Cost estimates for sections of the South Mountain are based on previous estimates.
3. Based on Travel model simulation 2020H1. This simulation included all planned improvements.
4. Based on Travel model simulation 2020H1 for the PM Peak Hour. Intersections used in the calculations were within a 1.25 mile radius of a freeway segment and had a volume to capacity ratio of 0.91 or greater.
5. Based on 1992 arterial accident data for intersections within a 1.25 mile radius of a planned alignment.
6. Based on 1995 projected CO concentrations.
7. Based on the cost-effectiveness measure used in the MAG Congestion Management System.

- Air Quality Improvements Measure. The air quality improvement criteria is approximated by the projected average carbon monoxide concentration in the area in which a freeway section passes in 1995. The reason for using this measure is that freeway improvements decrease delay and thereby reduce carbon monoxide emission levels. Data for this measure was derived from an air quality model simulation for analysis year 1995. For those areas outside the air quality modeling area, a 2.0 part per million carbon monoxide concentration was assumed.

- Cost Effectiveness Measure. The cost effectiveness measure used in this analysis is the total annualized cost of a freeway section divided by its total annual passenger miles of travel at the planning horizon. The annualized cost estimate is based on the total cost to complete the project as well as the maintenance cost of the project as outlined in the *MAG Congestion Management System Report*. Costs for segments were based on the January 22, 1997 Arizona Department of Transportation Valley Project Management Section FY 1998-2006 Tentative Program. Cost estimates for sections of the South Mountain are based on previous estimates. Travel demand data used in the measure was based on a travel demand simulation for the plan.

- Joint Funding Measure. A higher priority is given to projects which use local or private funding contributions to leverage public funding. This variable is quantified by assigning the following numerical values to segments.

  -2- Private and local funding pays for most of the project.

  -1- Private and local funding pays for a significant portion of the project.

  -0- The project is nearly all publicly funded.

Quantitative Priority Ratings. Once quantitative measures are developed, each segment is rated for each criterion as either high, medium or low. Segments with a high rating are in the upper quartile while segments with a low rating are in the lowest quartile.

Qualitative Priority Measures. The remaining criteria cannot be realistically approximated by formal statistical measures. Therefore judgement is used in considering these factors. These factors include: social and community impacts, system continuity, system completion, regional needs and connectivity.

Quantitative Priority Rating Results. *Figures 8-5* lists priority data and ratings by freeway segment for Quantitative measures. Most freeway segments which improve access to developed areas in the central of the region have high overall ratings. These facilities are well located to address near term congestion problems. They also tend to serve the highest projected traffic demands. These freeways include the Pima Freeway from Interstate 17 to Shea Boulevard and the Price Freeway from Guadalupe Road to Warner Road.

Freeways with medium ratings are more diverse. They include orbital freeways which serve rapidly developing areas on the outskirts of current development, extensions of planned radial freeways, freeway sections which connect together other freeways and special access facilities in the center of the region.

Freeways with low overall ratings generally tend to be located at the very edge of urban development.

Figure 8-3: Funding Plan to Complete New Freeways, 1997 to 2017

Corridor	Segment	Average Daily Travel	Congested Intersec-tions per Mile	Accidents per Mile	Average Carbon Monoxide Concentration	Cost Effect-iveness	Joint Funding	Overall Rating
Agua Fria	Northern to I-10	High	Medium	Medium	High	High	Medium	Medium
Grand	Thomas to Camelback	Low	High	High	High	Low	Medium	Medium
Pima	I-17 to Squaw Peak	High	Medium	Medium	Medium	High	High	High
Pima	Squaw Peak to Scottsdale Rd	High	Medium	High	Medium	High	High	High
Pima	Scottsdale Rd–Frank Lloyd Wright	Medium	Medium	Medium	Medium	Medium	High	High
Pima	Frank Lloyd Wright Blvd to Shea	High	Medium	Medium	Medium	High	Medium	High
Price	Guadalupe Rd to Warner Rd	High	Medium	High	High	Medium	Medium	High
Price	Warner Rd to Santan	Medium	Medium	High	Medium	Medium	High	Medium
Red Mountain	Country Club Dr to Gilbert Rd	Medium	Medium	Medium	High	Medium	Medium	Medium
Red Mountain	Gilbert Rd to Bush Hwy	Medium	Medium	Medium	Medium	Medium	Medium	Low
Red Mountain	Bush Hwy to Superstition	Medium	Medium	Medium	Medium	Medium	Medium	Low
Santan	I-10 to Price	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Santan	Price to Arizona Av	Medium	High	Medium	Medium	High	Medium	Medium
Santan	Arizona Av to Gilbert Rd	Medium	High	Medium	Medium	Medium	Medium	Medium
Santan	Gilbert Rd to Power Rd	Medium	Medium	High	Medium	Medium	Medium	Low
Santan	Power Rd to Superstition	Low	Medium	High	Medium	Low	Medium	Low
Sky Harbor	University Dr to I-10	Low	High	High	High	Low	Medium	Medium
South Mountain	Papago (I-10W) to Baseline Rd	Low	High	Medium	Medium	Low	Medium	Medium
South Mountain	Baseline Rd to 7th St.	Low	Medium	High	Medium	Medium	High	Low
South Mountain	7th St. to Maricopa (I-10E)	Medium	Medium	Medium	Medium	Low	High	Medium
Squaw Peak	Bell Rd to Pima	Medium	Medium	High	Medium	Medium	Medium	Medium

These freeways include the Red Mountain from Gilbert Road to the Superstition, the Santan from Gilbert Road to the Superstition and the South Mountain between Baseline Road and 7th Street.

Adopted MAG Priorities. The adopted MAG priorities are listed in detail in Appendix A and are summarized in *Figure 8-6*. Freeway priorities were updated by MAG in November 1996, based on revised revenue forecasts due to a sustained economic recovery and improved forecasting methods. These priorities were then incorporated into the ADOT 1998-2006 Life Cycle Program and the ADOT 2007-2015 Long Range Plan. The new priorities were determined by applying the adopted criteria and by considering several factors, which included:

- Acceleration of funded components.
- Address air quality hot spots.
- Restoration of landscaping, lanes and lighting funds.
- Address mobility and intermodal connections.
- Advanced right of way acquisitions.

Because of increased revenues, the new priorities accelerated a number of freeway sections, while not deferring the completion date of other sections. Freeways that were accelerated included sections of the Pima, Price, Squaw Peak and Agua Fria. Freeways sections that were not accelerated were generally too close to actual construction to be positively impacted by financial considerations.

Also, a number of outlying freeways such as the eastern half of the Red Mountain and the Santan were either accelerated or assigned specific priority completion dates for the first time. In the ADOT Regional Freeway System January 31, 1996, FY 1997-2006 Life Cycle Certification these sections were listed as unfunded. The revised priorities indicate that all of these sections will be completed by 2014.

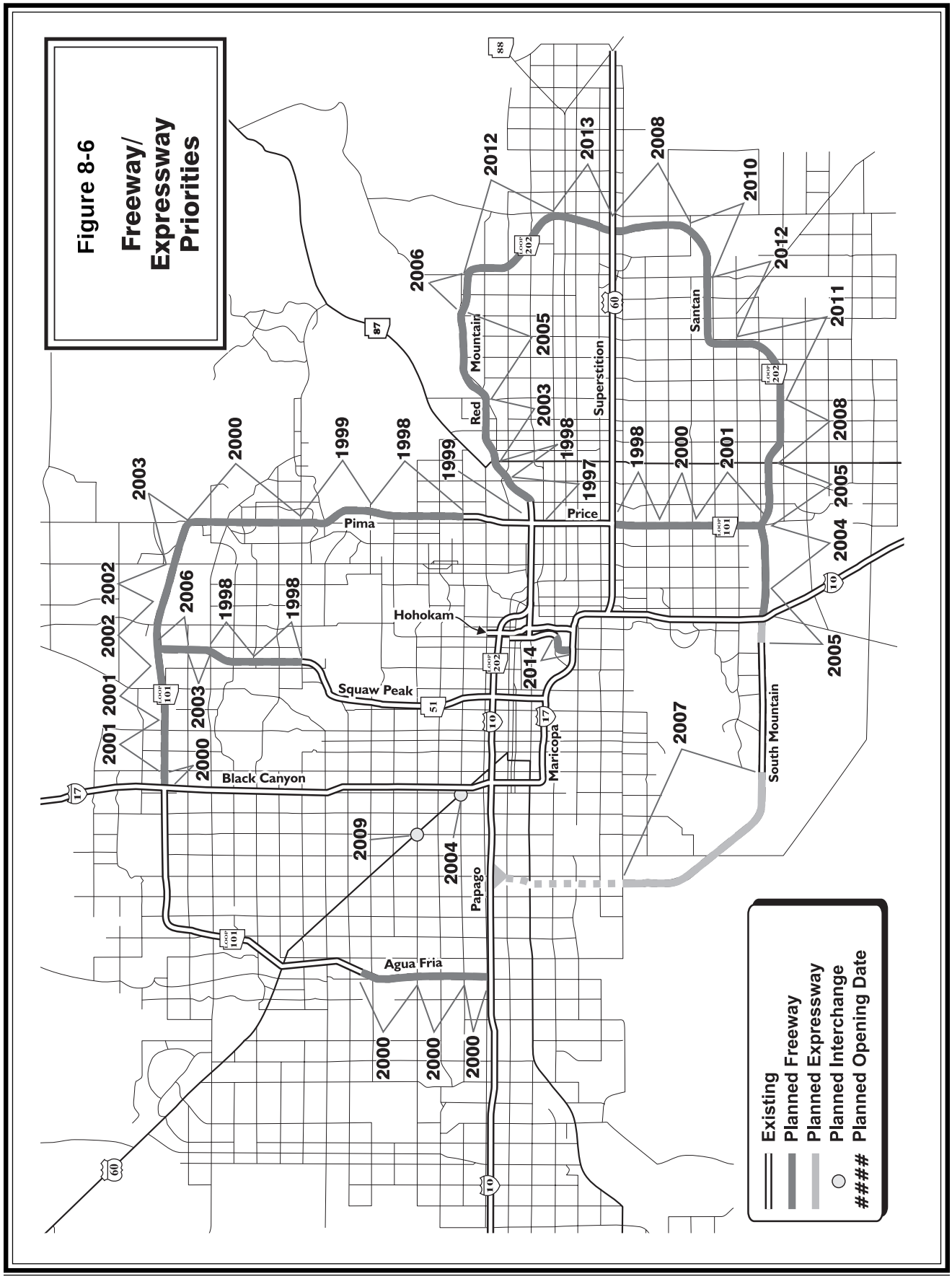
The addition of two overpasses on Grand and the revision of the design concept for the South Mountain were part of priority revisions forwarded by MAG to ADOT in November 1996. Priority completion dates for these facilities are included in this Update.

The resulting priorities for new freeways reflect the adopted qualitative and quantitative criteria. Facilities with high ratings such as the Pima, and Price have high priorities for early completion, while other facilities that have low priority ratings such as eastern sections of the Santan and Red Mountain have lower priorities for completion. Qualitative criteria such as system continuity, economic and social development, and regional impact are reflected in the priority of the Santan from the Superstition to Williams Gateway Airport and the South Mountain from 19th Avenue to Baseline Road.

In addition to new freeways, the MAG Long Range Transportation Plan includes improvements to existing freeways. These improvements include reconstruction of the I-17/I-10 corridor and the completion of a system to expedite high-occupancy vehicle travel.

Studies. Portions of the I-17/I-10 corridor are now 40 years old. In 1986, ADOT completed the I-17/I-10 Corridor Study that outlines the concept for reconstruction of this corridor. In 1990 ADOT completed the I-17 System Design/Operations Study that details near term improvements for I-17. A collector distributer system on I-10 between 24th Street and Baseline Road was detailed in a report entitled, *I-10 Corridor Refinement Study 16th Street/ Buckeye Road to Baseline Road* which was completed in May 1988.

Figure 8-6: Freeway/Expressway Priorities



In 1994, MAG completed a High Occupancy Vehicle (HOV) Plan for the MAG freeway system. HOV facilities include HOV lanes, HOV ramps, on line bus terminals, and park-and-ride lots. Corridors recommended for HOV facilities include I-10, I-17, Squaw Peak, Superstition and Red Mountain to Dobson Road.

In 1996, MAG completed a Major Investment Studies (MIS) for the Superstition and Squaw Peak freeways. This study was guided by a working group composed of representatives from Mesa, Phoenix, Tempe, Maricopa County, ADOT, MAG, RPTA, the Arizona Department of Environmental Quality, the Federal Highway Administration and the Federal Transit Administration. The MIS studies included updated transportation data and public input, and emphasized congestion relief, environmental factors and funding feasibility. Twenty-four options were analyzed at a general level while an HOV option was analyzed in detail. The working group recommended the HOV option in both corridors and the following priorities for construction of HOV lanes.

1. Interstate 17, Interstate 10 to Dunlap Avenue, first priority.

2. Superstition, Interstate 10 to Gilbert Road, second priority.

3. Squaw Peak, Interstate 10 to Shea Boulevard, third priority.

The MIS further concludes that in completing these studies, concepts for connecting the HOV lanes to I-10 at both the Superstition and Squaw Peak should be considered. However, it is recognized that the first priority is for construction of HOV lanes on the Superstition and Squaw Peak and that HOV lane connections to I-10 would be a second priority. ADOT is currently proceeding with design concept and environmental studies for initial HOV lanes in these corridors.

Long Range Plan. The Long Range Transportation Plan (LRTP) includes completion of the MAG HOV Plan with HOV lanes on Interstate 17 as the highest priority. The first step is to complete longer and wider structures on Interstate 17 to facilitate future reconstruction. The last of these interchanges have been included in the ADOT 1998-2002 Program. Funds for the design of HOV lanes have also been included in this program. The LRTP includes completion of the highest priority HOV lanes on Interstate 17, Superstition and Squaw Peak (as defined above) by 2010. Other HOV improvements are targeted for the 2010 to 2017 period.

Final reconstruction of Interstate 17 to 10 lanes and the addition of collector distributor roads on Interstate 10 are targeted for the 2010 to 2017 period. These collector distributor roads were part of the 1994 Update of the Plan, but were dropped in the 1995 Update because of funding limitations. See *Figure 8-7* for additional information on improvements to existing freeways.

FUNDING PLAN FOR EXISTING FREEWAYS

The funding plan for existing freeways emphasizes a trend commitment of ADOT discretionary funds.

Costs. Costs for all planned improvements to existing freeways are detailed in previous related studies as previously discussed. All costs have been updated for inflation. In addition, costs on I-17 have been updated to exclude the cost of recent improvements.

FIGURE 8-7: Funding Plan to Complete Improvements to Existing Freeway[a]

	Project Improvements (In Millions of 1997 Dollars)	**July 1996 to June 2010**	**July 2010 to Dec 2017**	**Total Cost**
Funding				
Potential ADOT Discretionary Funding–Existing	Trend MAG share of ADOT discretionary funds without adjustments for inflation or more efficient vehicles	$520	$112	$632
Potential ADOT Discretionary Funding–New	The amount of increased funding necessary to maintain the per capita level of State Discretionary Funding equal to that of the FY 1997-2001 period.[b]	258	353	611
Total Funding		**$778**	**$465**	**$1,243**
Costs				
Interstate 17	Thomas Road to Dunlap Avenue - Add 1 HOV lane in each direction.[c]	$125	$0	$125
	Thomas Road to Dunlap Avenue - Ultimate reconstruction, including adding 1 general purpose lane in each direction.[c]	0	437	437
	Dunlap Avenue to Thunderbird Road -- Add 1 general purpose lane in each direction.[d]	0	124	124
Squaw Peak[e]	I-10 to Shea Boulevard -- Add 1 HOV lane in each direction	68	0	68
	Shea Boulevard to Pima -- Add 1 HOV lane in each direction	0	23	23
	I-10/Squaw Peak Ramps -- HOV connection for north/south movements between I-10 and the Squaw Peak	0	33	33
Superstition[e]	I-10 to Gilbert Road -- Add 1 HOV lane in each direction	55	0	55
	Gilbert Road to Santan -- Add 1 HOV lane in each direction	0	55	55
	I-10/Superstition Ramps -- HOV connection to I-10 for north-to-south and south-to-north bound movements.	0	49	49
Interstate 10[f]	Salt River to Baseline Road — Construct parallel collector distributer roadways	0	262	262
Total Costs		**$248**	**$983**	**$1,231**
Balance		**$530**	**($518)**	**$12**

a. All project costs have been updated to 1997 dollars.
b. See text.
c. Based on a data table dated 10/24/1994 entitled "I-17 Estimated Improvement Costs" that was prepared by the ADOT Statewide Project Management Section for the 1995 Long Range Transportation Plan Update.
d. Based on the *I-17 System Design/Operations Study* (ADOT, December 1990) .
e. Based on High Occupancy Vehicle Facilities Policy Guidelines and Plan for the MAG Freeway System (MAG, 1994). The cost of the section from Power Road was added based on the per mile cost in the previous section.
f. Based on the I-10 *Corridor Refinement Study 16th Street/Buckeye Road to Baseline Road Study* (ADOT, May 1988).

Funds. Funding for improvements to existing freeways are based on a trend commitment of ADOT Discretionary funds. ADOT Discretionary funds include federal funds and Highway User Revenue Funds (HURF) as allocated to ADOT on a formula bases. The principal revenue source for these funds are a fixed rate per gallon fuel tax which is slowly eroded over time by inflation and more efficient vehicles. In addition, as this funding source is eroded, limited funds will need to be increasingly focused on basic maintenance needs rather than new construction.

In the past, periodic adjustments to the fuel tax have been made to keep pace with inflation and more efficient vehicles. The trend concept, as outlined in *Appendix C,* is that these adjustments will continue in the future.

ADOT funding commitments to the MAG region for non-maintenance purposes average $40 million per year in 1997-2001. Without periodic adjustments, this funding source could decline to near zero by 2017. However, with periodic adjustments to keep pace with growth and inflation this funding source, as illustrated in *Figure 8-7,* could raise sufficient revenue to complete planned improvements to the existing freeways.

Because of new legislative constraints and raising taxes, State transportation funding adjustments may not occur in the same way as in the past. A state wide referendum may be needed. One option that has been discussed is a sales tax on fuel with revenues returned to the source of collection for projects on the state highway system.

SECTION 9

Pedestrians

The Intermodal Surface Transportation Efficiency Act specifically states that the development of transportation systems embracing various modes including pedestrian walkways should be encouraged and promoted. In 1993, MAG developed a plan which identified policies to encourage walking, and suggested areas where these policies might be best implemented.

In 1994, the MAG Pedestrian Working Group was formed to promote increased awareness of walking as an alternative mode of travel and improve facilities for people who walk. In 1995, the Pedestrian Plan was replaced with Policies and Design Guidelines.

REGIONAL GOALS

The Working Group adopted a mission statement with the following pedestrian planning goals:

- Improve the environment for people who use walking as a transportation mode of necessity.
- Provide economic development benefits from pedestrian areas.
- Strengthen and develop existing connections within the multi-modal system and develop guidance for site and right-of-way design to support walking.
- Encourage local land use planning, zoning, and design policies that support the most direct routes between destinations, and the development of communities where walking is a viable mode of transportation.
- Identify infrastructure to support walking as a transportation mode.

REGIONAL ACTIONS

The following actions have been undertaken to implement MAG Planning for Pedestrian Goals:

- Replacement of the *1993 MAG Pedestrian Plan* with *Pedestrian Area Policies and Design Guidelines*. The *Policies and Design Guidelines* are incorporated by reference into this Plan. The document identifies types of pedestrian areas commonly found in the MAG region and proposes policies and design elements to promote walking. The *Policies and Guidelines* are intended for use by MAG members.

- Conduct seminars and offer design assistance to local communities and design professionals to encourage local land use policies that support walking as a transportation mode. In 1996, MAG worked with the Governor's Bicycle Task Force to sponsor a two day accredited course on pedestrian and bicycle safety.

- Providing Design Assistance to encourage the development of plans and construction documents for Pedestrian areas. In 1996, MAG provided $40,000 of Design Assistance to develop Pedestrian Plans and limited construction documents for pedestrian improvements to West Fifth Street between Priest and Mill in the City of Tempe and the Arizona Government Mall at the Capital.

- Supporting the use of ISTEA Enhancement Funds to plan, design, and build pedestrian facilities. In 1996, $500,000 of enhancement funds were provided to the City of Tempe for the construction of the West 5th Street pedestrian facilities, and almost $600,000 was provided to Phoenix to construct pedestrian facilities on Central Avenue and a multi-modal commuter route along the Cave Creek Wash.

In the future, the Working Group plans to continue its education efforts, fund projects to demonstrate design principles which support walking, continue to analyze the factors which support as well as deter residents from using walking as a transportation mode, and further refine the MAG Pedestrian Plan to keep it current with regional needs and transportation improvements.

SECTION 10

Streets

The MAG Regional Street Plan incorporates local street plans for major streets and non controlled access State highway plans. For the most part, these are existing and planned paved streets on the mile grid street system plus at-grade State highways which provide intercity access. To facilitate a system of high speed roadways, MAG has adopted and maintains a Roads of Regional Significance Concept. The Plan includes a finance plan that identifies costs and funding for the Street Plan.

REGIONAL STREET PLAN

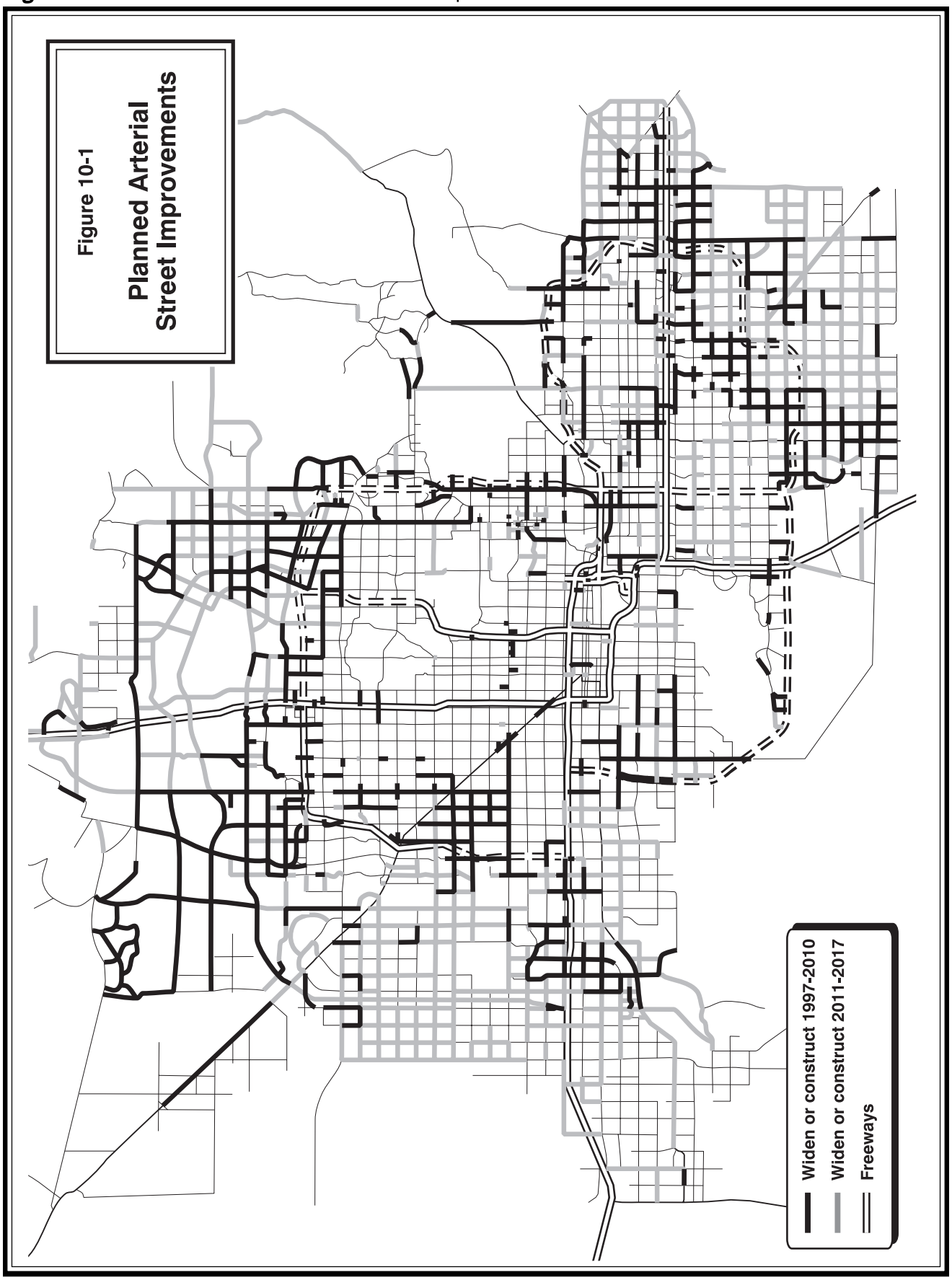
The Regional Street Plan is limited to major streets and highways. For the most part, it reflects existing and planned paved streets on the mile grid street system plus at-grade State highways which provide intercity access. This system is illustrated by *Figure 10-1*.

Currently, the MAG regional planning area contains almost 8000 lane miles of arterial streets. Under current plans, this mileage will increase nearly 60 percent by the year 2017. Information on planned street improvements is updated by surveying MAG member agencies every two to three years. The latest survey was in the Fall of 1996 and the results are incorporated into this Update to extend the planning horizon to 2017. This survey information is incorporated into the MAG modeling networks and used for all planning purposes (see Section 4 for a description of the MAG travel demand model process). These modeling networks constitute the MAG Regional Street Plan.

FINANCIAL PLAN

The current street funding plan is an extrapolation of previous plans. It is based on a trend funding concept as detailed in the *MAG Regional Street Plan* as completed by MAG in February 1996. The current funding plan to complete the MAG Regional Street Plan is outlined in *Figure 10-2*. Public revenues are predominantly used to maintain

Figure 10-1: Planned Arterial Street Improvements



and operate street facilities and to widen existing facilities in developed areas. Developer contributions are a key source for road improvements in developing areas. In this analysis public revenue sources are assumed to keep pace with growth. Street funding sources include:

- **Federal.** Several sources of federal funds are available to local governments. These include two categories of funds from the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) Program. Also included are Community Development Block Grants (CDBG) from the Federal Office of Housing and Urban Development. The allocation of ISTEA funding for street projects is based on MAG funding policies and results of the MAG Transportation Management Systems. Street projects need to compete with other modal uses of MAG federal funding on a year by year basis.

- **Highway User Revenue Funds (HURF).** HURF is a collection of statewide revenue sources including per gallon fuel taxes, the vehicle licence tax and various transportation fees and taxes. It is dedicated for the improvement, maintenance and operation of roadways and is distributed by statutory formula to ADOT and the counties, cities and towns of Arizona. This is the principal source of funding for street improvements.

- **Local Transportation Assistance Fund (LTAF)**. LTAF funds are derived from the State Lottery and are distributed to all Arizona cities, towns and counties for improving transportation facilities and services.

- **Local Funds.** These are locally generated funds raised from property taxes, special improvement districts, sales taxes or other locally generated taxes and fees.

- **Private Funds.** When new development is constructed, private funds are often used to construct major street projects. This funding may be negotiated as part of the zoning process or it may be derived from developer fees.

System costs were estimated and forecasted based on historic cost information provided by the MAG member agencies and ADOT. Costs were developed for estimating major and routine maintenance to the existing lane miles of roadway in 2010 and 2017 respectively. Costs associated with purchasing right-of-way and constructing new roadways were then estimated based on actual project cost data. The total cost in 1997 dollars to implement and maintain the 2017 Regional Street Plan is $8.6 billion. (See *Figure 10-2.*)

ROADS OF REGIONAL SIGNIFICANCE CONCEPT

The Roads of Regional Significance (RRS) concept and design guidelines were adopted by the MAG Regional Council in the Spring of 1991. Further analysis of this concept was completed in January 1996. The concept is a system of upgraded streets and roads to improve mobility in the urban areas, as well as into and out of the region. This concept is intended to facilitate coordination of street plans. This concept is not part of the Regional Street Plan or the Street Funding Plan.

The adopted Roads of Regional Significance (RRS) Concept includes Urban and Gateway

routes. Urban routes are designed to complement the freeway system and are spaced three to six miles apart. The concept is to facilitate the development of a system of routes with higher design standards and higher speeds that will help ensure regional mobility. Gateway routes provide access to the region and need to be protected to maintain free flow access into and out of the region.

Figure 10-2:
MAG Regional Street Funding Plan 1997-2017 (Millions of 1997 Dollars)

		1997 to 2010	2011 to 2017	Total
Arterial Lane Miles[1]	Starting Lane Miles	7,916	9,711	n.a.
	Ending Lane Miles	9,711	12,340	n.a.
	Lane Miles Constructed	**1,795**	**2,629**	**4,424**
Costs	Capital Outlay[2]	$1,826	$4,320	$6,146
	Operations and Maintenance Costs[3]	1,310	1,160	2,470
	Total Costs	3,136	**5,480**	8,616
Funding	Local	278	1,419	1,697
	State[4]	3,445	1,671	5,116
	Federal	108	35	143
	Private	725	943	1,668
	Total Funding	**$4,556**	**$4,068**	**$8,624**
Balance		**$1,420**	**($1,412)**	**$8**

1. Based on mileage input from MAG member agencies and coded into MAG transportation model networks.
2. Capital outlays refers to the cost of design, right-of-way and construction of arterial streets. Debt service and other costs of capital are not included in these estimate. The cost of construction of local streets are also not included as these facilities are generally constructed by private developers as part of the development process.
3. Operating and maintenance costs include the cost to maintain and operate both arterial and local streets. These costs include lighting, landscaping, street sweeping, pavement rehabilitation, sign and traffic signal maintenance and other street maintenance and operating costs. These costs do not include the cost for police or other social services related to the operation of streets.
4. Includes local HURF funds as well as State highway expenditures for non controlled access State highways in the MAG region.

SECTION 11

Transit

This section documents the transit element of the MAG Long Range Transportation Plan. This Plan calls for doubling bus service, tripling dial-a-ride service and construction of a 15 to 18 mile fixed guideway starter corridor. This LRTP also incorporates the Short Range Transit Plan and Regional Americans with Disabilities Act Complementary Paratransit Plan. The following text describe these Plans and the related long range funding plan.

SHORT RANGE TRANSIT PLAN

The MAG Short Range Transit Plan is prepared annually by the RPTA and creates a forum for coordinating regional public transportation programs. The most recent Short Range Transit Plan, FY 1997 through FY 2001, identifies both capital and operating improvements proposed for the region in the next five years. The Plan also addresses policy standards and funding issues for the region and outlines a performance evaluation of existing transit services for system management. This Plan calls for maintaining existing transportation services and a very modest increase in bus service over the next five years.

As mandated by the Americans with Disabilities Act of 1990 (ADA), annually the RPTA prepares and updates the Joint Complementary Paratransit Plan for the region. This Plan identifies the implementation of the ADA Paratransit Plan, and specifies regional plan progress for compliance with the Act. The Plan and all annual updates have been approved by the Federal Transit Administration (FTA). It is expected that the region will be in full compliance with the complementary paratransit provisions in 1997. Upon full compliance, annual plan updates will no longer be required. The Short Range Transit Plan incorporates the process and policies of the ADA implementation plan as part of this planning process.

LONG RANGE TRANSIT PLAN

Bus and Dial-A-Ride. Beginning the summer of 1989, local communities and various community groups throughout the region worked to develop local transit plans based on the needs and preferences expressed by their citizens. In May of 1990, a regional citizens committee was established and charged with melding these diverse local plans into a single comprehensive regional transit plan. This Plan was scaled back to the revenue estimated from a one-quarter percent sales tax and was adopted by the RPTA Board of Directors and the MAG Regional Council in July 1992 (see *Figure 11-1*). This Plan would provide for the following by the first five years after funding is acquired:

- Bus service seven days a week, 365 days a year.
- Weekday and Saturday bus service hours from 5:00 a.m. until midnight.
- Sunday bus service hours from 6:00 a.m. to 8:00 p.m.
- Regional dial-a-ride service 24 hours a day, seven days a week for seniors and persons with disabilities.
- Regional dial-a-ride service for the general public in areas when and where bus service is not available.
- Transit service area of approximately 500 square miles.
- Study rail transit feasibility options.

In general, the MAG Long Range Plan for Transit includes a doubling of bus service and a tripling of dial-a-ride service by 2005. After 2005, this service is projected to increase at the rate of population growth.

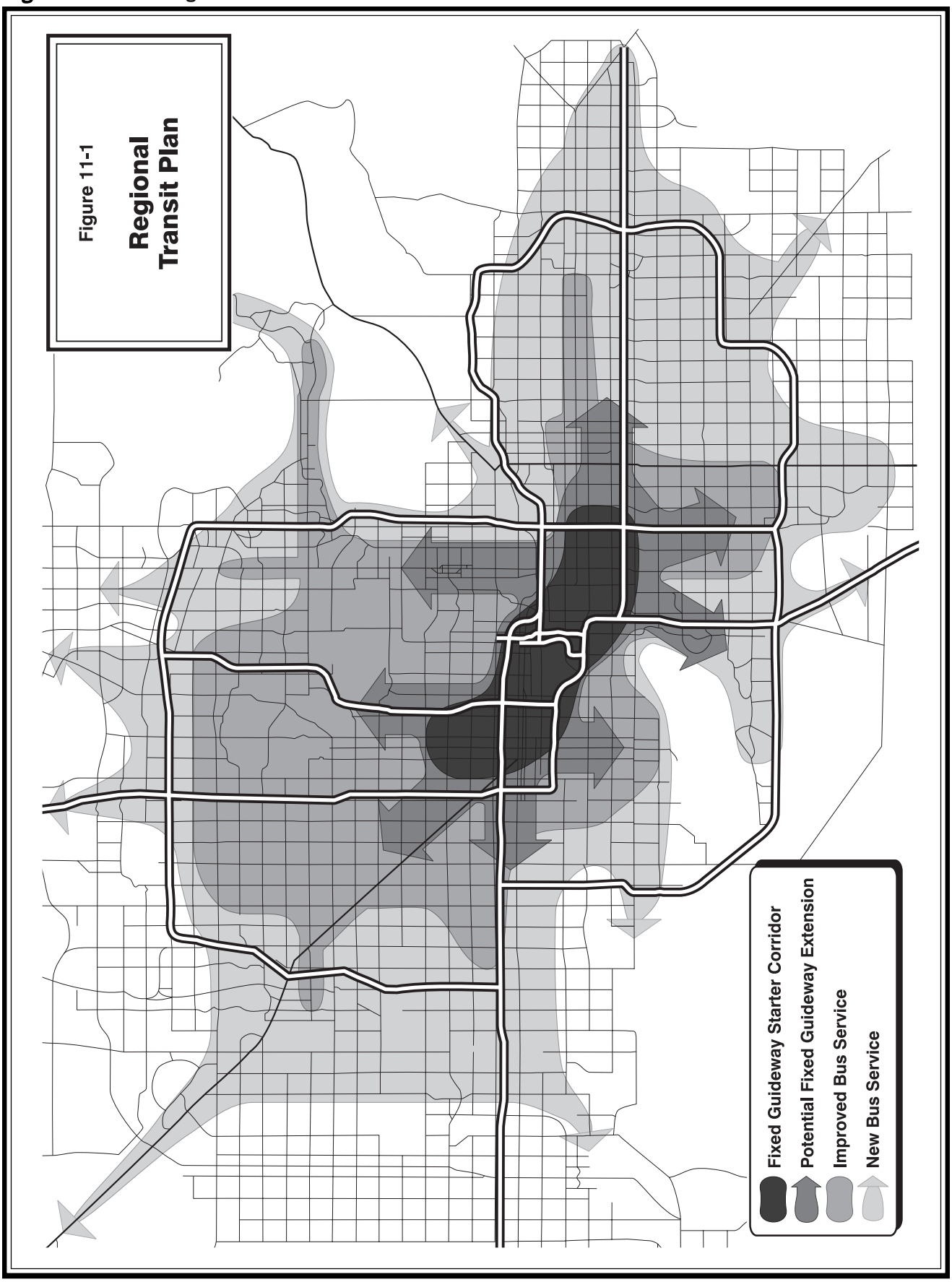
Fixed Guideway System. The 1993 Update of the MAG LRTP included a 35 mile fixed guideway system which extends from central Phoenix to downtown Glendale, Metro Center, downtown Tempe, downtown Scottsdale, and downtown Mesa. However, in 1994 this element of the MAG LRTP was removed for funding reasons when the time horizon was changed from 2020 to 2015.

MAG is required to maintain a LRTP with at least a 20 year time horizon. Therefore, in this Update the planning horizon is being extended to 2017. As part of this process, MAG embarked on a Regional Fixed Guideway System Study which could lead to adding a fixed guideway system back into the LRTP. The following Major Investment Studies (MIS) are also underway to address the fixed guideway concept at the corridor and subarea level: Central Phoenix/East Valley corridor, Downtown Tempe subarea, Scottsdale corridor, and a near northwest subarea which includes portions of Glendale and Phoenix.

In previous studies, as well as current initial study efforts, there is a clear high demand central corridor that is essential to be included in any fixed guideway system plan. In order to be competitive for potential Federal discretionary funds that will likely be allowed in the renewal of ISTEA, the MAG Regional Council took action in January 1997, to add a fixed guideway starter corridor in this high demand area to the MAG LRTP.

This corridor, as shown in *Figure 11-1* extends from central Phoenix to the East Valley. The corridor is approximately 15 to 18 miles long. Numerous studies remain to be completed to more precisely define this concept. However, the Plan calls for completing this starter corridor by 2006.

Figure 11-1: Regional Transit Plan



FUNDING PLAN

The FY 1996 Update of the MAG LRTP was based on approval of a county wide quarter-cent sales tax (or equivalent funding) starting in 2006. Since the last Update, the City of Tempe has passed a half-cent sales tax to support transit improvements and several other cities are considering presenting sales tax measures to voters for transit.

The funding plan of this FY 1997 Update is based on local jurisdictions in Maricopa County pursuing dedicated tax measures for transit. The specific outcomes on a jurisdiction by jurisdiction basis can not be projected at this time. However, it is reasonably feasible to anticipate that the overall magnitude of funds will be adequate to cover the balance of the costs of the proposed regional transit plan, albeit, that adjustments to the plan will need to be made as action in individual jurisdictions are determined. This funding plan also assumes that federal funds will be forthcoming to pay for 50 percent of the capital costs of the fixed guideway starter corridor.

This Plan is based on a conservative outlook for existing transit funding sources. It is assumed that existing funding sources will not keep pace with growth or inflation. The specifics are difficult to project, however, one pattern that is apparent is the severe cuts in federal funding for transit operations. Local transportation Assistance Funds (LTAF) are dependent on the lottery and are being challenged by new gaming endeavors throughout the region. Regional transit sales tax funds will end in 2005, and city general funds for transit will likely decline if new dedicated sales tax funds are approved. Specific funding measures that support the MAG LRTP are listed in Figure 11-2 and include the following:

- City general funds will be maintained at current dollar levels but will not keep pace with inflation.
- Federal funds for operations will end and capital funds for buses will be maintained at current dollar levels but will not keep pace with growth or inflation.
- New federal funds will cover half of the capital costs for a fixed guideway starter corridor.
- LTAF will be maintained at current dollar levels but will not keep pace with inflation.
- Public transportation funds (currently $6 million per year from the regional half-cent sales tax for transportation will end in 2005.
- Fares will cover approximately one fourth of overall operating costs. This will vary significantly by the type of service being provided.
- Dedicated local sales tax funds will be approved to fund the balance of the Long Range Transportation Plan.

Figure 11-2: MAG Long Range Transit Funding Plan

MAG LONG RANGE TRANSIT FUNDING PLAN

(Billions of 1997 dollars)

	1998 to 2010	2011 to 2017	TOTAL
COST OPERATING			
Fixed Route /1	1.22	1.10	2.32
Dial-a-Ride /2	0.32	0.31	0.63
Starter Corridor /3	0.04	0.06	0.10
Subtotal	1.58	1.47	3.05
COST CAPITAL			
Fixed Route Capital /4	0.48	0.35	0.83
Dial-a-Ride Capital /5	0.11	0.12	0.23
Starter Corridor /6	0.54	0.00	0.54
Park and Ride /7	0.05	0.04	0.09
Subtotal	1.19	0.51	1.69
TOTAL COST	2.77	1.97	4.74
FUNDING			
Fixed Route Fare Box /8	0.28	0.18	0.46
Dial-a-Ride Fare Box /9	0.03	0.02	0.05
Starter Corridor Fare Box	0.01	0.01	0.02
General Fund /11	0.19	0.06	0.25
LTAF /12	0.14	0.06	0.20
RARF /13	0.05	0.00	0.05
Federal Capital /14	0.33	0.27	0.60
Federal Starter Capital	0.27	0.00	0.27
Local Tax /16	1.76	1.14	2.90
TOTAL FUNDING	3.06	1.75	4.81
BALANCE	0.29	(0.22)	0.07

*Totals may not sum due to rounding

See following page for a list of footnotes.

Footnotes for Figure 11-2

/1 Doubles 1996 Fixed Route Operating costs (per RPTA Performance Management Analysis System, PMAS) by 2005 and increases with a 2.17% forecasted population growth rate starting in 2006.

/2 Triples 1996 Dial-a-Ride Operating costs (per PMAS) by 2005 and increases with a 2.17% forecasted population growth rate starting in 2006.

/3 Starter Corridor Operating costs from ISTEA II Proforma Recommendation Transit System Starter Corridor Designation, January 2, 1997.

/4 Increases 1996 Fixed Route Capital expenditures to double bus service by 2005 and maintains a fleet not more than twelve-years-old. Also, includes capital expenditures to expand transit stations and maintenance facilities.

/5 Increases 1996 Dial-a-Ride Capital expenditures and triple the Dial-a-Ride service by 2005 and maintains a fleet not more than four-years-old. Also, includes capital expenditures to expand transit stations and maintenance facilities.

/6 Starter Corridor Capital costs estimated from ISTEA II Proforma Recommendation Transit System Starter Corridor Designation, January 2, 1997. This cost represents only the cost of the starter corridor and does not include completion of the entire system or the cost of related support facilities such as park and ride lots and transit circulator systems.

/7 Park and Ride Lots Capital costs from HOV Facilities Policy Guidelines and Plan for the MAG Freeway System, September 1994.

/8 Fixed Route Fare Box revenues forecasted at average fare box recovery ratio of 22%.

/9 Dial-a-Ride Fare Box revenues forecasted at average fare box recovery ratio of 10%.

/10 Starter Corridor Fare Box revenue estimated at average fare box recovery ratio of 30% from ISTEA II Proforma Recommendation Transit System Starter Corridor Designation, January 2, 1997.

/11 1996 City general funds forecasted at a 4.55% declining rate in constant dollars.

/12 1996 LTAF (Local Transportation Assistance Funds per Comprehensive Annual Financial Report FY 1995-96, RPTA) forecasted at a 2% declining rate in constant dollars.

/13 RARF forecasted from ADOT Certification July 1996 RARF Transit forecast.

/14 Forecast of federal funds at a 4.55% declining rate for CMAQ, 5307 and 5309. Federal discretionary funds forecasted at $100 million from 1999 to 2002, and at $190 million from 2011 to 2017 in 1997 constant dollars. Should these federal funds not be forthcoming, local funding contributions would need to be increased to complete this transit plan.

/15 Forecasted Starter Corridor federal capital funds of $270 million in 1997 dollars per ISTEA II Proforma Recommendation Transit System Starter Corridor Designation, January 2, 1997. Should these federal funds not be forthcoming, local funding contributions would need to be increased to complete this facility.

/16 The City of Tempe has approved a dedicated half-cent sales tax for transit, and other cities are actively considering new revenue measures to support transit. It is reasonably feasible that new revenue measures will be approved at the local level to support this Long Range Transportation Plan.

Appendices

APPENDIX A

MAG Freeway Priorities

The following notation and abreviations are used in the tables in *Appendix A*.

ID Number

Route	101L10ACJA	Characters 1-4. May contain spaces. (example 51_10ACJA, 153_10ACJA)
Section	101L10ACJA	Characters 5-7. May not contain letters. (example 101L10_CJA)
Phase	101L10ACJA	Characters 8-10. Last character may be blank. (example 101L10ARC_)

Abreviations:

AS	ADOT Staff	LD	Landscape Design
CJA	Joint Agreement, Construction	PE	Preliminary Engineering
CO	Change Order	RC	Roadway Construction
FMD	Freeway Management Design	RD	Roadway Design
FMC	Freeway Management Construction	RW	Right of Way
EA	Environmental Assessment	SC	Structure Construction
LC	Landscape Construction	UC	Utility Relocation, Construction

All Projects

Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
AF												
P 101L02 RW	I-10 - ENCANTO BLVD	4,663	0	0	0	0	0	0	0	Jul - 96		24
P 101L02 RD	I-10 - ENCANTO BLVD	0	500	0	0	0	0	0	0	Jul - 97		12
P 101L02 RC	I-10 - ENCANTO BLVD	0	0	31,533	0	0	0	0	0	Oct - 98	Jul - 98	27
P 101L02 LD	I-10 - ENCANTO BLVD.; LDES	0	0	0	73	0	0	0	0	Jul - 99		12
P 101L02 LC	I-10 - ENCANTO BLVD.; LCON	0	0	0	0	1,334	0	0	0	Dec - 00	Sep - 00	12
P 101L03ARW	ENCANTO BLVD TO CAMELBACK RD	0	5,888	0	0	0	0	0	0	Jul - 97		24
P 101L03ARWR	JCT. I-10 - GLENDALE AVE, REPROGRAM	284	0	0	0	0	0	0	0	Jul - 96		12
P 101L03ARD	ENCANTO BLVD - CAMELBACK RD	0	750	0	0	0	0	0	0	Oct - 97		15
P 101L03ARC	ENCANTO BLVD - CAMELBACK RD	0	0	33,735	0	0	0	0	0	Apr - 99	Jan - 99	21
P 101L03ALD	ENCANTO BLVD. - CAMELBACK RD; LDES	0	0	0	110	0	0	0	0	Nov - 99		12
P 101L03ALC	ENCANTO BLVD. - CAMELBACK RD; LCON	0	0	0	0	2,001	0	0	0	Apr - 01	Jan - 01	12
P 101L03BRW2	CAMELBACK RD.- NORTHERN AVE.;PHASE B	0	8,895	0	0	0	0	0	0	Jul - 97		24
P 101L03BRW1	CAMELBACK RD.- NORTHERN AVE.;PHASE A	6,000	0	0	0	0	0	0	0	Jan - 97		12
P 101L03BRD	CAMELBACK RD.- NORTHERN AVE.	0	1,656	0	0	0	0	0	0	Jan - 98		15
P 101L03BRC	CAMELBACK RD.- NORTHERN AVE.	0	0	30,111	0	0	0	0	0	Jul - 99	Apr - 99	18
P 101L03BLD	CAMELBACK RD. - NORTHERN AVE.; LDES	0	0	0	106	0	0	0	0	Apr - 00		12
P 101L03BLC	CAMELBACK RD. - NORTHERN AVE.; LCON	0	0	0	0	1,927	0	0	0	Aug - 01	May - 01	12
P 101L04ARWR	GLENDALE AVE - GRAND AVE, REPROGRAM	84	0	0	0	0	0	0	0	Jul - 96		12
P 101L04BRWR	GRAND AVE - BELL RD, REPROGRAM	34	0	0	0	0	0	0	0	Jul - 96		12
P 101L05ARWR	BELL RD - 51st AVE, REPROGRAM	1,025	0	0	0	0	0	0	0	Jul - 96		12
P 101L05ALD	75TH AVE - 51ST AVE	100	0	0	0	0	0	0	0	Aug - 96		8
P 101L05BRWR	51ST AVE - I-17, REPROGRAM	417	0	0	0	0	0	0	0	Jul - 96		12
P 101L05CLC	75TH AVE - 51ST AVE, LCON	2,250	0	0	0	0	0	0	0	Jun - 97	Mar - 97	12
P 101L05DLD	51ST AVE - 31ST AVE, LDES	0	102	0	0	0	0	0	0	Jul - 97		12
P 101L05DLC	51ST AVE - 31ST AVE, LCON	0	0	1,853	0	0	0	0	0	Oct - 98	Jul - 98	12
	CORRIDOR TOTALS	14,857	17,791	97,232	289	5,262	0	0	0		$135,431	

All Projects

Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
GR												
P 60 01ARW	THOMAS/27TH AVE STRUCTURE	0	0	0	24,000	0	0	0	0	Feb - 00		24
P 60 01ASD	THOMAS/27TH AVE STRUCTURE	0	0	0	3,490	0	0	0	0	Feb - 00		24
P 60 01ASC	THOMAS/27TH AVE STRUCTURE	0	0	0	0	0	0	31,750	0	Jan - 03	Oct - 02	24
P 60 02ARW	CAMELBACK/43RD AVE STRUCTURE	0	0	0	0	0	0	24,000	0	Feb - 05		24
P 60 02ASD	CAMELBACK/43RD AVE STRUCTURE	0	0	0	0	0	0	3,490	0	Feb - 05		24
L 60 02ASC	CAMELBACK/43RD AVE STRUCTURE	0	0	0	0	0	0	0	31,750	Jun - 07	Mar - 07	24
60 99 RWR	BEARDSLEY RD TO AGUA FRIA, REPROGRAM	74	0	0	0	0	0	0	0	Jul - 96		12
60 99 RWR	GRAND AVE UW, REPROGRAM	119	0	0	0	0	0	0	0	Jul - 96		12
60 99 RWR	McDOWELL RD & THOMAS RD, REPROGRAM	49	0	0	0	0	0	0	0	Jul - 96		12
60 99 RWR	BETHANY HOME TO GLENDALE, REPROGRAM	24	0	0	0	0	0	0	0	Jul - 96		12
	CORRIDOR TOTALS	266			27,490	0	0	59,240	31,750		$118,746	
PA												
50 99 RWR	PARADISE PKWY, REPROGRAM	2,793	0	0	0	0	0	0	0	Jul - 96		12
	CORRIDOR TOTALS	2,793				0	0	0	0		$2,793	
PI												
P 101L06DRD	I-17 - 19TH AVE, EAST I/2 TI	0	500	0	0	0	0	0	0	Feb - 97		9
P 101L06DRC	I-17 - 19TH AVE, EAST I/2 TI	0	0	25,732	0	0	0	0	0	Dec - 98	Sep - 98	21
P 101L06DLD	I-17/101L TI, LDES	0	0	134	0	0	0	0	0	Oct - 98		12
P 101L06DLC	I-17/101L TI, LCON	0	0	0	2,438	0	0	0	0	Apr - 00	Jan - 00	12
P 101L07 RWR	I-17 - CAVE CREEK, REPROGRAM	2,533	0	0	0	0	0	0	0	Jul - 96		12
P 101L07ARD	19TH AVE - 12TH ST, PHASE B	0	1,228	0	0	0	0	0	0	Apr - 98		12
P 101L07ARC	19TH AVE - 12TH ST, PHASE B	0	0	22,334	0	0	0	0	0	Jul - 99	Apr - 99	18
P 101L07CRD	12TH ST - CAP CANAL, PHASE B	0	1,176	0	0	0	0	0	0	Apr - 98		12
P 101L07CRC	12TH ST - CAP CANAL, PHASE B	0	0	0	21,386	0	0	0	0	Jul - 00	Apr - 00	18
P 101L07ERW	I-17 - 56TH ST, PHASE A, ROW INCR.	998	0	0	0	0	0	0	0	Jan - 97		6
P 101L07ERC	I-17 - 56TH STREET, PHASE A	38,067	0	0	0	0	0	0	0	Jun - 97	Mar - 97	18
P 101L08BRW	56TH STREET - SCOTTSDALE RD, PHASE A	0	800	0	0	0	0	0	0	Jul - 97		6
P 101L08BRC	56TH STREET - SCOTTSDALE RD, PHASE A	0	12,770	0	0	0	0	0	0	Jan - 98	Oct - 97	15
P 101L08CRD	CAP CANAL - SCOTTSDALE RD, PHASE B	0	0	1,227	0	0	0	0	0	Apr - 99		18
P 101L08CRC	CAP CANAL - SCOTTSDALE RD, PHASE B	0	0	0	0	22,309	0	0	0	Jan - 01	Oct - 00	15
P 101L09 RWR	SCOTTSDALE RD - DBLTR RCH RD, REPROGRAM	8,326	0	0	0	0	0	0	0	Jul - 96		12
P 101L09BRD	SCOTTSDALE RD - PIMA RD, PHASE B	0	0	0	0	1,038	0	0	0	Jan - 01		18

* Dallar amounts in Thousands

~Draft Tentative~January 22, 1997M~

1/23/1997 FY98TENT V2.1a

All Projects

Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
PI												
P 101L09BRC	SCOTTSDALE RD - PIMA RD, PHASE B	0	0	0	0	0	18,873	0		0 Jul - 02	Apr - 02	15
P 101L09CRW	PIMA RD - SHEA BLVD.	19,601	0	0	0	0	0	0		0 Jan - 97		27
P 101L09CRW	PIMA RD - SHEA; PLANS/APPRAISALS	250	0	0	0	0	0	0		0 Oct - 96		9
P 101L09CRC	PIMA RD - SHEA BLVD.	0	0	64,351	0	0	0	0		0 Jan - 99	Oct - 98	24
P 101L09CLD	PIMA RD. - SHEA BLVD.; LDES	0	0	0	169	0	0	0		0 Sep - 99		12
P 101L09CLC	PIMA RD. - SHEA BLVD.; LCON	0	0	0	0	3,068	0	0		0 Apr - 01	Jan - 01	12
P 101L09DRW	SCOTTSDALE ROAD - PIMA ROAD, PHASE A	1,352	0	0	0	0	0	0		0 Jan - 97		9
P 101L09DRC	SCOTTSDALE ROAD - PIMA ROAD, PHASE A	0	10,400	0	0	0	0	0		0 Jan - 98	Oct - 97	18
P 101L10 RWR	DBLTR RCH RD TO SO. RESV BDRY, REPROGRAM	3,851	0	0	0	0	0	0		0 Jul - 96		12
P 101L10ARW	SHEA BLVD. TO 90 TH ST, FY 97 ROW INCR.	2,216	0	0	0	0	0	0		0 Jan - 97		6
P 101L10ARD	SHEA BLVD - 90th ST	795	0	0	0	0	0	0		0 Jul - 96		6
P 101L10ALD	SHEA BLVD. - 90TH ST.; LDES	0	65	0	0	0	0	0		0 Mar - 98		12
P 101L10ALC	SHEA BLVD. - 90TH ST.; LCON	0	0	0	1,186	0	0	0		0 Oct - 99	Jul - 99	12
P 101L10ELD	90TH STREET - MCKELLIPS RD	450	0	0	0	0	0	0		0 Apr - 97		12
P 101L10ELC	90TH ST - MCKELLIPS	0	0	7,353	0	0	0	0		0 Jul - 99	Apr - 99	18
P 101L10FRC	SHEA BLVD - McDONALD DR	60,555	0	0	0	0	0	0		0 Jun - 97	Feb - 97	27
P 101L10GRC	McDONALD DR - THOMAS RD	27,420	0	0	0	0	0	0		0 Apr - 97	Nov - 96	13
P 101L10IRD	PIMA ROAD EXTENSION	0	150	0	0	0	0	0		0 Oct - 97		12
P 101L10IRC	PIMA ROAD EXTENSION	0	0	2,696	0	0	0	0		0 Jan - 99	Oct - 98	12
P 101L10JUD	PIMA ROAD UTILITIES, DES	0	248	0	0	0	0	0		0 Jul - 97		9
P 101L10JUC	PIMA ROAD UTILITIES	0	4,500	0	0	0	0	0		0 Jul - 98	Apr - 98	12
P 101L10JRC	PIMA ROAD WIDENING (MCDOWELL-VIA LINDA)	0	2,000	0	0	0	0	0		0 Jul - 98	Apr - 98	12
P 101L11 RW	SO. RESV BDRY - 1ST STREET	700	0	0	0	0	0	0		0 Jan - 97		12
P 101L11 LD	RED MOUNTAIN TI; LDES	0	0	119	0	0	0	0		0 Jan - 99		12
P 101L11 LC	RED MOUNTAIN TI; LCON	0	0	0	2,166	0	0	0		0 Jul - 00	Apr - 00	12
P 101L11 FMC	RED MOUNTAIN TI; FMS	0	0	0	0	800	0	0		0 Jan - 01	Oct - 00	12
P 101L11CRD	RED MTN TI: PHASE IV (RAMPS W-S,S-E,W-N, & N-E)	250	0	0	0	0	0	0		0 Jan - 97		15
P 101L11CRC	RED MTN TI: PHASE IV (RAMPS W-S,S-E,W-N, & N-E)	0	11,792	0	0	0	0	0		0 Jul - 98	Apr - 98	18
P 101L11FSC	SALT RIVER HARDBANK, PIMA FREEWAY EAST	0	0	1,800	0	0	0	0		0 Jan - 99	Oct - 98	15
P 101L12 RWR	McKELLIPS RD - US 60, REPROGRAM	5	0	0	0	0	0	0		0 Jul - 96		12
	CORRIDOR TOTALS	167,369	45,629	125,746	27,345	27,215	18,873	0		0	$412,177	

* Dallar amounts in Thousands

~Draft Tentative~January 22, 1997M~

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All Projects — Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
PR												
P 101L12AFMC	FMS: US 60 - 1ST STREET	2,370	0	0	0	0	0	0	0	Jun - 97	Mar - 97	15
P 101L13BUCR	PRICE TI; PHASE II, UTILITIES, REPROGRAM	5,000	0	0	0	0	0	0	0	Jul - 96		12
P 101L13BLD	PRICE TI; LANDSCAPE	0	100	0	0	0	0	0	0	May - 98		6
P 101L13BLC	PRICE TI: LANDSCAPE	0	0	2,274	0	0	0	0	0	Apr - 99	Jan - 99	12
P 101L14 RC	PRICE TI: PHASE III	48,161	0	0	0	0	0	0	0	Nov - 96	Aug - 96	28
P 101L14ARWR	US 60 - WESTERN CANAL, REPROGRAM	40	0	0	0	0	0	0	0	Jul - 96		12
P 101L14ARW	PRICE TI; PHASE III, TO GUADALUPE, FY 97 ROW INCR	101	0	0	0	0	0	0	0	Jan - 97		6
P 101L14AUCR	BASELINE - GUADALUPE, UTILITIES	1,762	0	0	0	0	0	0	0	Jul - 96		15
P 101L14ARC	BASELINE - GUADALUPE	16,492	0	0	0	0	0	0	0	Mar - 97	Dec - 96	22
P 101L14ALD	BASELINE RD - GUADALUPE, LDES	0	0	41	0	0	0	0	0	Jul - 98		12
P 101L14ALC	BASELINE RD - GUADALUPE, LCON	0	0	0	741	0	0	0	0	Oct - 99	Jul - 99	12
P 101L14BRWR	WESTERN CANAL - RAY RD, REPROGRAM	9,284	0	0	0	0	0	0	0	Jul - 96		12
P 101L14BRW	GAUDALUPE RD TO WARNER RD, FY 97 ROW INCR	1,700	0	0	0	0	0	0	0	Jan - 97		6
P 101L14BRD	GUADALUPE RD. - WARNER RD.	2,400	0	0	0	0	0	0	0	Jan - 97		18
P 101L14BRC	GUADALUPE RD. - WARNER RD.	0	60,479	0	0	0	0	0	0	Sep - 98	Jun - 98	27
P 101L14BLD	GUADALUPE RD. - WARNER RD., LDES	0	0	0	82	0	0	0	0	Feb - 00		12
P 101L14BLC	GUADALUPE RD. - WARNER RD., LCON	0	0	0	0	1,482	0	0	0	May - 01	Feb - 01	12
P 101L14CRWR	WESTERN CANAL TO RAY RD (FED), REPROGRAM	2,420	0	0	0	0	0	0	0	Jul - 96		12
P 101L15 RW	WARNER RD. - FRYE RD.; PHASE B	0	5,957	0	0	0	0	0	0	Jul - 97		24
P 101L15 RWR	RAY RD - PECOS, REPROGRAM	80	0	0	0	0	0	0	0	Jul - 96		12
P 101L15 RD	WARNER RD. - FRYE RD.; PHASE B	0	1,885	0	0	0	0	0	0	Jul - 97		18
P 101L15 UC	WANER - FRYE RD; PHASE B, UTILITY	0	0	3,000	0	0	0	0	0	Jan - 99		12
P 101L15 RC	WARNER RD. - FRYE RD.; PHASE B	0	0	0	34,274	0	0	0	0	Jan - 00	Oct - 99	24
P 101L15 LD	WARNER RD. - FRYE RD.; LDES	0	0	0	69	0	0	0	0	May - 00		12
P 101L15 LC	WARNER RD. - FRYE RD.; LCON	0	0	0	0	0	1,247	0	0	Jan - 02	Oct - 01	12
P 101L99 RWR	GILA DRAIN FLOODWAY, REPROGRAM	4	0	0	0	0	0	0	0	Jul - 96		12
	CORRIDOR TOTALS	89,814	68,421	5,315	35,166	1,482	1,247	0	0		$201,445	

All Projects

Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
RM												
P 202L00 EIS	COUNTRY CLUB - US 60: EIS	750	0	0	0	0	0	0	0	Sep - 96		24
P 202L00BFMC	FMS: SR 143 - LOOP 101	5,414	0	0	0	0	0	0	0	Jun - 97	Mar - 97	18
P 202L01 RWR	JCT I-10 - 44th ST, REPROGRAM	6	0	0	0	0	0	0	0	Jul - 96		0
P 202L02 RWR	E. PAPAGO - HOHOKAM TI, REPROGRAM	715	0	0	0	0	0	0	0	Jul - 96		0
P 202L03 RWR	46th ST - GRAND CANAL, REPROGRAM	257	0	0	0	0	0	0	0	Jul - 96		0
P 202L10AFMD	FMS; FROM LP. 101 TO 1 MI. E. OF LP. 101	0	0	60	0	0	0	0	0	Oct - 98		12
P 202L10AFMC	FMS; FROM LP. 101 TO 1 MI. E. OF LP. 101	0	0	0	835	0	0	0	0	Jan - 00	Oct - 99	18
P 202L10BRWR	DOBSON - McKELLIPS RD (FED), REPROGRAM	9,225	0	0	0	0	0	0	0	Jul - 96		12
P 202L10BRWR	DOBSON - McKELLIPS RD, REPROGRAM	14	0	0	0	0	0	0	0	Jul - 96		12
P 202L10BLD	PIMA 101L - COUNTRY CLUB DR	0	150	0	0	0	0	0	0	Jan - 98		10
P 202L10BLC	PIMA 101L - COUNTRY CLUB DR	0	0	2,075	0	0	0	0	0	Jan - 99	Oct - 98	12
P 202L10DRWR	McKELLIPS - COUNTRY CLUB (FED), REPROGRAM	16,999	0	0	0	0	0	0	0	Jul - 96		12
P 202L10DRW	MCKELLIPS RD TO COUNTRY CLUB, FY 97 ROW INCR	7,000	0	0	0	0	0	0	0	Jan - 97		6
P 202L10DRC	McKELLIPS - COUNTRY CLUB DR	10,743	0	0	0	0	0	0	0	Jun - 97	Mar - 97	19
P 202L11 RW	COUNTRY CLUB - GILBERT	0	0	0	20,207	0	0	0	0	Aug - 99		24
P 202L11 RD	COUNTRY CLUB - GILBERT	0	0	0	1,871	0	0	0	0	Apr - 00		18
P 202L11 RC	COUNTRY CLUB - GILBERT	0	0	0	0	0	34,018	0	0	Jan - 02	Oct - 01	24
P 202L12ARW	GILBERT RD - HIGLEY RD	0	0	0	0	0	18,072	0	0	Oct - 01		24
P 202L12ARD	GILBERT RD - HIGLEY RD	0	0	0	0	0	2,413	0	0	Oct - 01		24
P 202L12ARC	GILBERT RD - HIGLEY RD	0	0	0	0	0	0	43,874	0	Dec - 03	Sep - 03	18
P 202L12BRW	HIGLEY RD - BUSH HWY	0	0	0	0	0	0	8,510	0	Apr - 03		24
P 202L12BRD	HIGLEY RD - BUSH HWY	0	0	0	0	0	0	879	0	Apr - 03		24
P 202L12BRC	HIGLEY RD - BUSH HWY	0	0	0	0	0	0	15,982	0	Jul - 05	Apr - 05	18
L 202L13 RW	BUSH HWY - UNIVERSITY DR	0	0	0	0	0	0	0	10,517	Sep - 08		24
L 202L13 RD	BUSH HWY - UNIVERSITY DR	0	0	0	0	0	0	0	2,531	Sep - 08		24
L 202L13 RC	BUSH HWY - UNIVERSITY DR	0	0	0	0	0	0	0	46,027	Dec - 10	Sep - 10	24
L 202L14ARW	UNIVERSITY - US 60	0	0	0	0	0	0	0	7,077	Sep - 09		24
L 202L14ARD	UNIVERSITY - US 60	0	0	0	0	0	0	0	1,824	Sep - 09		24
L 202L14ARC	UNIVERSITY - US 60	0	0	0	0	0	0	0	33,163	Jan - 12	Sep - 11	24
L 202L14BRW	US 60 - BASELINE ROAD	0	0	0	0	0	0	3,810	0	Sep - 04		24
L 202L14BRD	US 60 - BASELINE ROAD	0	0	0	0	0	0	608	0	Sep - 04		24

* Dallar amounts in Thousands

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ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
RM												
202L14BRC	US 60 - BASELINE ROAD	0	0	0	0	0	0	0	11,057	Jan - 07	Oct - 06	24
202L99 RWR	JCT. SR 217 - JCT. SR 220, REPROGRAM	186	0	0	0	0	0	0	0	Jul - 96		12
	CORRIDOR TOTALS	51,309	150	2,135	22,913	0	54,503	73,663	112,196		$316,869	
SA												
202L15 EA	US 60 - PRICE 101L; EA	0	500	0	0	0	0	0	0	Jul - 97		12
202L15 RW	ELLIOT ROAD - BASELINE ROAD	0	0	0	0	0	0	2,837	0	Sep - 04		24
202L15 RD	ELLIOT ROAD - BASELINE ROAD	0	0	0	0	0	0	1,054	0	Sep - 04		24
202L15 RC	ELLIOT ROAD - BASELINE ROAD	0	0	0	0	0	0	0	19,165	Jan - 07	Oct - 06	24
202L16 RW	POWER ROAD - ELLIOT ROAD	0	0	0	0	0	0	0	4,037	Sep - 06		24
202L16 RD	POWER ROAD - ELLIOT ROAD	0	0	0	0	0	0	0	1,861	Sep - 06		24
202L16 RC	POWER ROAD - ELLIOT ROAD	0	0	0	0	0	0	0	33,839	Jan - 09	Oct - 08	24
202L17 RW	HIGLEY ROAD - POWER ROAD	0	0	0	0	0	0	0	3,105	Sep - 08		24
202L17 RD	HIGLEY ROAD - POWER ROAD	0	0	0	0	0	0	0	772	Sep - 08		24
202L17 RC	HIGLEY ROAD - POWER ROAD	0	0	0	0	0	0	0	14,045	Jan - 11	Oct - 10	24
202L18 RW	WILLIAMS FIELD ROAD - HIGLEY ROAD	0	0	0	0	0	0	0	2,683	Sep - 08		24
202L18 RD	WILLIAMS FIELD ROAD - HIGLEY ROAD	0	0	0	0	0	0	0	1,254	Sep - 08		24
202L18 RC	WILLIAMS FIELD ROAD - HIGLEY ROAD	0	0	0	0	0	0	0	22,800	Jan - 11	Oct - 10	24
202L19 RW	GILBERT RD. - WILLIAMSFIELD RD.	0	0	0	0	0	0	0	10,360	Oct - 07		24
202L19 RD	GILBERT RD. - WILLIAMSFIELD RD.	0	0	0	0	0	0	0	2,498	Oct - 07		24
202L19 RC	GILBERT RD. - WILLIAMSFIELD RD.	0	0	0	0	0	0	0	45,420	Jan - 10	Oct - 09	24
202L20 RW	ARIZONA AVE - GILBERT RD	0	0	0	0	0	0	8,414	0	Sep - 04		24
202L20 RD	ARIZONA AVE - GILBERT RD	0	0	0	0	0	0	2,376	0	Sep - 04		24
202L20 RC	ARIZONA AVE - GILBERT RD	0	0	0	0	0	0	0	40,739	Jan - 07	Oct - 06	24
202L21 RW	DOBSON RD - ARIZONA AVE (SR 87)	0	0	0	0	0	5,041	0	0	Apr - 02		24
202L21 RD	DOBSON RD - ARIZONA AVE (SR 87)	0	0	0	0	0	1,732	0	0	Apr - 02		24
202L21 RC	DOBSON RD - ARIZONA AVE (SR 87)	0	0	0	0	0	0	31,484	0	Jul - 04	Apr - 04	18
202L22ARW	PRICE / SANTAN TI, EAST I/2	0	0	0	0	0	4,855	0	0	Feb - 02		24
202L22ARD	PRICE / SANTAN TI, EAST I/2	0	0	0	0	0	1,329	0	0	Feb - 02		24
202L22ARC	PRICE / SANTAN TI, EAST I/2	0	0	0	0	0	0	24,168	0	Apr - 04	Jan - 04	20
202L22BRD	PRICE / SANTAN TI, WEST I/2	0	0	0	0	1,564	0	0	0	Feb - 01		24
202L22BRC	PRICE / SANTAN TI, WEST I/2	0	0	0	0	0	0	28,444	0	Jul - 03	Apr - 03	18
	KYRENE - McCLINTOCK	0	0	0	0	1,320	0	0	0	Feb - 01		24

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ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
SA												
P 202L23 RC	KYRENE - McCLINTOCK	0	0	0	0	0	0	24,002		0 Jun - 03	Mar - 03	18
P 202L23ARD	56TH STREET - PRICE (101L), DRAINAGE, PH I	163	0	0	0	0	0	0		0 Jan - 97		6
P 202L23AUC	56TH STREET - PRICE (101L); UTILITY RELOCATION	0	2,000	0	0	0	0	0		0 Jul - 97		12
P 202L23ARC	56TH STREET - PRICE (101L), DRAINAGE, PH I	0	0	0	0	0	0	0		0 Mar - 97	Jan - 97	12
P 202L23BRW	56TH STREET - PRICE (101L), DRAINAGE, PH II	172	0	0	0	0	0	0		0 Jan - 97		12
P 202L23BRD	56TH STREET - PRICE (101L), DRAINAGE, PH II	137	0	0	0	0	0	0		0 Jul - 96		12
P 202L23BRC	56TH STREET - PRICE (101L), DRAINAGE, PH II	0	0	0	0	0	0	0		0 Oct - 97	Jul - 97	9
P 202L23CRW	56TH STREET - PRICE (101L), DRAINAGE, PH III	0	8,416	0	0	0	0	0		0 Jul - 97		18
P 202L23CRD	56TH STREET - PRICE (101L), DRAINAGE, PH III	0	223	0	0	0	0	0		0 Jul - 97		12
P 202L23CRC	56TH STREET -PRICE (101L), DRAINAGE, PH III	0	0	0	0	0	0	0		0 Oct - 98	Jul - 98	12
P 202L23EDC	KYRENE PUMPHOUSE	0	0	2,244	0	0	0	0		0 Oct - 98	Jul - 98	15
P 202L24ARW	SANTAN / I-10 TI, EAST 1/2	0	0	0	23,064	0	0	0		0 May - 00		24
P 202L24ARD	SANTAN / I-10 TI, EAST 1/2	0	0	0	2,402	0	0	0		0 May - 00		24
P 202L24ARC	SANTAN / I-10 TI, EAST 1/2	0	0	0	0	0	43,673	0		0 Jul - 02	Apr - 02	30
P 202L99 RWR	SANTAN, REPROGRAM	821	0	0	0	0	0	0		0 Jul - 96		12
	CORRIDOR TOTALS	**1,293**	**11,139**	**2,244**	**25,466**	**2,884**	**56,630**	**122,779**	**202,578**		**$425,013**	
SH												
L 153 08 RW	SUPERIOR - UNIVERSITY DRIVE	0	0	0	0	0	0	0		7,723 Oct - 10		24
L 153 08 RD	SUPERIOR - UNIVERSITY DRIVE	0	0	0	0	0	0	0		647 Oct - 10		24
L 153 08 RC	SUPERIOR - UNIVERSITY DRIVE	0	0	0	0	0	0	0		11,770 Jan - 13	Oct - 12	24
	CORRIDOR TOTALS	**0**				**0**	**0**	**0**	**20,140**		**$20,140**	
SM												
P 202L00 RW	MAG "SET-A-SIDE"	0	0	0	0	0	7,150	0		0 Mar - 02		24
P 202L00 RD	MAG "SET-A-SIDE"	0	0	0	0	0	12,850	0		0 Mar - 02		24
P 202L00 RC	MAG "SET-A-SIDE"	0	0	0	0	0	0	65,000		0 Jan - 05	Oct - 04	36
P 202L01 RW	PROPERTY MANAGEMENT; ROW	5	0	0	0	0	0	0		0 Jan - 97		6
P 202L24BRW	SANTAN/S. MTN/I-10 TI, WEST 1/2	0	0	0	0	4,846	0	0		0 Apr - 01		24
P 202L24BRD	SANTAN/S. MTN/I-10 TI, WEST 1/2	0	0	0	0	2,547	0	0		0 Apr - 01		24
P 202L24BRC	SANTAN/S. MTN/I-10 TI, WEST 1/2	0	0	0	0	0	0	36,384		0 Jan - 04	Oct - 03	24
	CORRIDOR TOTALS	**5**				**7,393**	**20,000**	**101,384**	**0**		**$128,782**	

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ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
SP												
P 51 03 RWR	26th ST TO SHEA BLVD, REPROGRAM	368	0	0	0	0	0	0		0 Jul - 96		12
P 51 04 RWR	SHEA BLVD - THUNDERBIRD RD, REPROGRAM	1,139	0	0	0	0	0	0		0 Jul - 96		12
P 51 04 RW	SHEA BLVD TO THUNDERBIRD RD, FY 97 ROW INCR	256	0	0	0	0	0	0		0 Jan - 97		6
P 51 04 UCR	SHEA BLVD - THUNDERBIRD RD, REPROGRAM	400	0	0	0	0	0	0		0 Jul - 96		12
P 51 04 LD	SHEA BLVD - THUNDERBIRD RD, LDES	0	0	90	0	0	0	0		0 Oct - 98		12
P 51 04 LC	SHEA BLVD - THUNDERBIRD RD, LCON	0	0	0	1,638	0	0	0		0 Jan - 00	Oct - 99	12
P 51 05 RWR	THUNDERBIRD RD - BELL RD REPROGRAM	11,704	0	0	0	0	0	0		0 Jul - 96		12
P 51 05BUCR	THUNDERBIRD RD - BELL RD, REPROGRAM	50	0	0	0	0	0	0		0 Jul - 96		12
P 51 05BRC	THUNDERBIRD RD - BELL RD.	31,757	0	0	0	0	0	0		0 Nov - 96	Aug - 96	24
P 51 05BLD	THUNDERBIRD RD. - BELL RD., LDES	0	0	86	0	0	0	0		0 Oct - 98		12
P 51 05BLC	THUNDERBIRD RD. - BELL RD., LCON	0	0	0	1,564	0	0	0		0 Jan - 00	Oct - 99	12
P 51 07 RW	BELL RD - UNION HILLS DR	586	0	0	0	0	0	0		0 Jan - 97		24
P 51 07 RWR	BELL RD - UNION HILLS DR, REPROGRAM	4	0	0	0	0	0	0		0 Jul - 96		12
P 51 07 RD	BELL RD - UNION HILLS DR	0	0	0	907	0	0	0		0 Apr - 00		24
P 51 07 RC	BELL RD - UNION HILLS DR	0	0	0	0	0	16,490	0		0 Jul - 02	Apr - 02	18
P 51 08 RW	UNION HILLS DR - PIMA 101L	0	0	0	0	0	8,689	0		0 Oct - 01		24
P 51 08 RD	UNION HILLS DR - PIMA 101L	0	0	0	0	0	1,485	0		0 Oct - 01		24
P 51 08 RC	UNION HILLS DR - PIMA 101L	0	0	0	0	0	0	27,006		0 Jan - 05	Oct - 04	24
P 51 08ARW	UNION HILLS DR - PIMA 101L, HAUL RD TCE	60	0	0	0	0	0	0		0 Jan - 97		12
P 5100AFMD	GLENDALE AVE - BELL ROAD, FMS DES	530	0	0	0	0	0	0		0 May - 97		12
P 5100AFMC	GLENDALE AVE - BELL ROAD, FMS CON	0	6,413	0	0	0	0	0		0 Aug - 98	May - 98	18
	CORRIDOR TOTALS	46,854	6,413	176	4,109	0	26,664	27,006		0	$111,222	
SW												
P 00 01DPE	PREL ENG GC (SYSTEM WIDE, FY97)	2,500	0	0	0	0	0	0		0 Jul - 96		12
P 00 01EPE	PREL ENG GC (SYSTEM WIDE, FY98)	0	2,500	0	0	0	0	0		0 Jul - 97		12
P 00 01FPE	PREL ENG GC (SYSTEM WIDE, FY99)	0	0	2,500	0	0	0	0		0 Jul - 98		12
P 00 01GPE	PREL ENG GC (SYSTEM WIDE, FY00)	0	0	0	2,000	0	0	0		0 Jul - 99		12
P 00 01HPE	PREL ENG GC (SYSTEM WIDE, FY01)	0	0	0	0	1,500	0	0		0 Jul - 00		12
P 00 01IPE	PREL ENG GC (SYSTEM WIDE, FY02)	0	0	0	0	0	1,500	0		0 Jul - 01		12
P 00 01JPE	PREL ENG GC (SYSTEM WIDE, FY03)	0	0	0	0	0	0	1,500		0 Jul - 02		12
P 00 01KPE	PREL ENG GC (SYSTEM WIDE, FY04)	0	0	0	0	0	0	1,500		0 Jul - 03		12
P 00 01LPE	PREL ENG GC (SYSTEM WIDE, FY05)	0	0	0	0	0	0	1,500		0 Jul - 04		12

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All Projects

Arizona Department of Transportation Valley Project Management Section
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ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
SW												
P 00 01MPE	PREL ENG GC (SYSTEM WIDE, FY06)	0	0	0	0	0	0	1,500	0	Jul - 05		12
L 00 01NPE	PREL ENG GC (SYSTEM WIDE, FY07)	0	0	0	0	0	0	0	1,500	Jul - 06		12
L 00 01OPE	PREL ENG GC (SYSTEM WIDE, FY08)	0	0	0	0	0	0	0	1,500	Jul - 07		12
L 00 01PPE	PREL ENG GC (SYSTEM WIDE, FY09)	0	0	0	0	0	0	0	1,500	Jul - 08		12
L 00 01QPE	PREL ENG GC (SYSTEM WIDE, FY10)	0	0	0	0	0	0	0	1,500	Jul - 09		12
L 00 01RPE	PREL ENG GC (SYSTEM WIDE, FY11)	0	0	0	0	0	0	0	1,000	Jul - 10		12
L 00 01SPE	PREL ENG GC (SYSTEM WIDE, FY12)	0	0	0	0	0	0	0	1,000	Jul - 11		12
L 00 01TPE	PREL ENG GC (SYSTEM WIDE, FY13)	0	0	0	0	0	0	0	500	Jul - 12		12
L 00 01UPE	PREL ENG GC (SYSTEM WIDE, FY14)	0	0	0	0	0	0	0	500	Jul - 13		12
P 00 02HCO	DESIGN CHANGE ORDERS (FY97)	4,500	0	0	0	0	0	0	0	Jul - 96		12
P 00 02ICO	DESIGN CHANGE ORDERS (FY98)	0	2,000	0	0	0	0	0	0	Jul - 97		12
P 00 02JCO	DESIGN CHANGE ORDERS (FY99)	0	0	1,500	0	0	0	0	0	Jul - 98		12
P 00 02KCO	DESIGN CHANGE ORDERS (FY00)	0	0	0	1,500	0	0	0	0	Jul - 99		12
P 00 02LCO	DESIGN CHANGE ORDERS (FY01)	0	0	0	0	1,500	0	0	0	Jul - 00		12
P 00 02MCO	DESIGN CHANGE ORDERS (FY02)	0	0	0	0	0	1,500	0	0	Jul - 01		12
P 00 02NCO	DESIGN CHANGE ORDERS (FY03)	0	0	0	0	0	0	1,000	0	Jul - 02		12
P 00 02OCO	DESIGN CHANGE ORDERS (FY04)	0	0	0	0	0	0	1,000	0	Jul - 03		12
P 00 02PCO	DESIGN CHANGE ORDERS (FY05)	0	0	0	0	0	0	1,000	0	Jul - 04		12
P 00 02QCO	DESIGN CHANGE ORDERS (FY06)	0	0	0	0	0	0	1,000	0	Jul - 05		12
L 00 02RCO	DESIGN CHANGE ORDERS (FY07)	0	0	0	0	0	0	0	1,000	Jul - 06		12
L 00 02SCO	DESIGN CHANGE ORDERS (FY08)	0	0	0	0	0	0	0	1,000	Jul - 07		12
L 00 02TCO	DESIGN CHANGE ORDERS (FY09)	0	0	0	0	0	0	0	1,000	Jul - 08		12
L 00 02UCO	DESIGN CHANGE ORDERS (FY10)	0	0	0	0	0	0	0	750	Jul - 09		12
L 00 02VCO	DESIGN CHANGE ORDERS (FY11)	0	0	0	0	0	0	0	750	Jul - 10		12
L 00 02WCO	DESIGN CHANGE ORDERS (FY12)	0	0	0	0	0	0	0	500	Jul - 11		12
P 00 05DCO	UTILITY LOCATING (FY 97)	500	0	0	0	0	0	0	0	Jul - 96		12
P 00 05ECO	UTILITY LOCATING (FY 98)	0	500	0	0	0	0	0	0	Jul - 97		12
P 00 06DAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY97)	1,200	0	0	0	0	0	0	0	Jul - 96		12
P 00 06EAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY98)	0	1,200	0	0	0	0	0	0	Jul - 97		12
P 00 06FAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY99)	0	0	1,200	0	0	0	0	0	Jul - 98		12
P 00 06GAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY00)	0	0	0	1,200	0	0	0	0	Jul - 99		12

All Projects — Arizona Department of Transportation Valley Project Management Section
FY1998-2006 Tentative Program (Includes Long Range Plan)

ID NO	PROJECT DESCRIPTION	FY 97 (000)	FY 98 (000)	FY 99 (000)	FY 00 (000)	FY 01 (000)	FY 02 (000)	FY03-06 (000)	FY07-15 (000)	PLANNED START	AD DATE	DURATION
SW												
P 00 06HAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY01)	0	0	0	0	1,200	0	0	0	Jul - 00		12
P 00 06IAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY02)	0	0	0	0	0	1,200	0	0	Jul - 01		12
P 00 06JAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY03)	0	0	0	0	0	0	1,200	0	Jul - 02		12
P 00 06KAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY04)	0	0	0	0	0	0	1,200	0	Jul - 03		12
P 00 06LAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY05)	0	0	0	0	0	0	1,200	0	Jul - 04		12
P 00 06MAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY06)	0	0	0	0	0	0	1,200	0	Jul - 05		12
L 00 06NAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY07)	0	0	0	0	0	0	0	1,200	Jul - 06		12
L 00 06OAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY08)	0	0	0	0	0	0	0	1,200	Jul - 07		12
L 00 06PAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY09)	0	0	0	0	0	0	0	1,200	Jul - 08		12
L 00 06QAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY10)	0	0	0	0	0	0	0	1,200	Jul - 09		12
L 00 06RAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY11)	0	0	0	0	0	0	0	1,200	Jul - 10		12
L 00 06SAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY12)	0	0	0	0	0	0	0	1,200	Jul - 11		12
L 00 06TAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY13)	0	0	0	0	0	0	0	1,200	Jul - 12		12
L 00 06UAS	PRELIMINARY ENGINEERING (ADOT STAFF, FY14)	0	0	0	0	0	0	0	1,200	Jul - 13		12
P 00 07BRW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY97)	2,000	0	0	0	0	0	0	0	Jul - 96		12
P 00 07CRW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY98)	0	2,000	0	0	0	0	0	0	Jul - 97		12
P 00 07DRW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY99)	0	0	2,000	0	0	0	0	0	Jul - 98		12
P 00 07ERW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY00)	0	0	0	2,000	0	0	0	0	Jul - 99		12
P 00 07FRW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY01)	0	0	0	0	2,000	0	0	0	Jul - 00		12
P 00 07GRW	SYSTEM WIDE ROW ADVANCE ACQUISITION (FY02)	0	0	0	0	0	2,000	0	0	Jul - 01		12
	CORRIDOR TOTALS	**10,700**	**8,200**	**7,200**	**6,700**	**6,200**	**6,200**	**14,800**	**23,600**		**$83,600**	
	FISCAL YEAR TOTALS	**385,260**	**157,743**	**240,048**	**149,478**	**50,436**	**184,117**	**398,872**	**390,264**			
	FUNDED PROGRAM TOTAL	**1,956,218**										

* Dallar amounts in Thousands

~Draft Tentative~January 22, 1997M~

1/23/1997 FY98TENT V2.1a

APPENDIX B

Transportation Planning Factors

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires MAG to address 16 planning factors in its transportation planning process. This Appendix documents how these planning factors have been considered in the MAG transportation planning process.

BACKGROUND

Section 450.316 of the ISTEA regulations specify that,"The following factors shall be explicitly considered, analyzed as appropriate, and reflected in the planning process products.

(1) Preservation of existing transportation facilities and, where practical, ways to meet transportation needs by using existing transportation facilities more efficiently;

(2) Consistency of transportation planning with applicable Federal, State, and local energy conservation programs, goals, and objectives;

(3) The need to relieve congestion and prevent congestion from occurring where it does not yet occur including;
   (I) The consideration of congestion management strategies or actions which improve the mobility of people and goods in all phases of the planning process; and
   (ii) In TMAs, a congestion management system that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operation management strategies, (e.g., various elements of IVHS) shall be developed in accordance with § 450.320;

(4) The likely effect of transportation policy decisions on land use and development and the consistency of transportation plans and programs with the provisions of all applicable short- and long-term land use and development plans (the analysis should include projections of metropolitan planning area economic, demographic, environmental protection, growth management, and land use activities consistent with metropolitan and local/central city development goals (community, economic, housing, etc.), and projections of potential transportation demands based on the interrelated level of activity in these areas);

(5) Programming of expenditures for transportation enhancement activities as required under 23 U.S.C. 133;

(6) The effects of all transportation projects to be undertaken within the metropolitan planning area, without regard to the source of funding (the analysis shall consider the effectiveness, cost effectiveness, and financing of alternative investments in meeting transportation demand and supporting the overall efficiency and effectiveness of transportation system performance and related impacts on community/central city goals regarding social and economic development, housing, and employment);

(7) International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations (supporting technical efforts should provide an analysis of goods and services movement problem areas, as determined in cooperation with appropriate private sector involvement, including, but not limited to, addressing interconnected transportation access and service needs of intermodal facilities);

(8) Connectivity of roads within metropolitan planning areas with roads outside of those areas;

(9) Transportation needs identified through the use of the management systems required under 23 U.S.C. 303 (strategies identified under each management system will be analyzed during the development of the transportation plan, including its financial component, for possible inclusion in the metropolitan plan and TIP);

(10) Preservation of rights-of-way for construction of future transportation projects, including future transportation corridors;

(11) Enhancement of the efficient movement of freight;

(12) the use of life-cycle costs in the design and engineering of bridges, tunnels, or pavement (operating and maintenance costs must be considered in analyzing transportation alternatives);

(13) The overall social, economic, energy, and environmental effects of transportation decisions (including consideration of the effects and impacts of the plan on the human, natural and man-made environment such as housing, employment and community development, consultation with appropriate resource and permit agencies to ensure early and continued coordination with environmental resource protection and management plans, and appropriate emphasis on transportation-related air quality problems in support

of the requirements of 23 U.S.C. 109(h), and section 14 of the Federal Transit Act (49 U.S.C. 1610) section 4(f) of the DOT Act (49 U.S.C. 303) and section 174 (b) of the Clean Air Act (42 U.S.C. 7504(b)));

(14) Expansion, enhancement, and increased use of transit services; and

(15) Capital investments that would result in increased security in transit systems.

(16) Recreational Travel and Tourism

The 1993 Update of the *MAG Long Range Transportation Plan* (LRTP) explicitly documents how these 15 factors are considered in the MAG transportation planning process. This documentation is included in the following reports.

- *MAG Long Range Transportation Plan: Summary and 1993 Update*.
- *MAG 1994-1998 Transportation Improvement Program*.
- *Conformity Analyses*.
- *Conformity Analysis Appendices*.
- *Demographic, Economic and Land Use Considerations*.
- *Environmental and Energy Considerations*.
- *Intermodal Facilities and Goods Movement Considerations*.
- *Supplemental Highway Considerations*.
- *Supplemental Transit Considerations*.
- *MAG Regional Street Financial Plan*.
- *Pedestrian Plan for the MAG Region*.

The MAG LRTP addresses all modes of transportation over a 20 year period. Planned freeway, street and transit improvements will each cost billions of dollars--individual projects can cost millions and take years to complete. Given this level of investment and the time needed to develop and implement individual projects, it is necessary that the MAG Plan maintain a reasonable level of consistency from year to year. The Plan as it exists in this Update is not only a function of the analysis undertaken this year but is the product of many reports, analyses, and decisions compiled in previous years. In this light, the 1993 planning reports listed above serve as the basis for the incremental updates of the MAG Plan in 1994, 1995, 1996 and 1997.

PRESERVATION AND EFFICIENT USE OF EXISTING FACILITIES

Maintenance and operating costs for streets and transit are part of this 1997 Update, and are included in the financial plans for these modes. Maintenance costs for freeways are a State responsibility. These costs are addressed in the ADOT *Needs Assessment Study*. Maintenance cost for other modes are addressed in individual Plan elements as approved over the last several years.

The MAG LRTP includes improvements to existing freeways and streets. The LRTP includes the addition of high occupancy vehicle facilities on the Black Canyon, Superstition and Squaw Peak freeways. HOV improvements on these facilities were identified in the 1995 Update of the LRTP as a high priority for ADOT funding in the MAG region. Portions of these improvements were identified in the recommendation of the Major Investment Studies for the Squaw Peak and Superstition corridors, included in this 1997 Update. Segments of existing freeways have a freeway management system in place, with future planned implementation is underway. These improvements are a high priority in the MAG LRTP. MAG Federal funds are programmed to complete some of these improvements.

Improvements to existing streets are included in the LRTP and Transportation Improvement Program (TIP). Several new projects improve signal coordination which are partially funded with MAG Federal funds.

CONSISTENCY WITH ENERGY GOALS

As part of the 1993 Plan Update the MAG technical report *Environmental and Energy Considerations* was prepared. This Plan identifies and analyzes historical and projected regional energy consumption. In addition, it details applicable objectives, agency responsibilities, and energy conservation programs.

MAG modal plans which directly relate to energy conservation include doubling bus service, tripling dial-a-ride service, improving bicycle and pedestrian facilities, maintaining demand management programs, expanding HOV facilities and addition of freeway management system improvements. Freeway and street capacity improvements will reduce congestion and wasted energy use.

Reductions in transportation energy use in the MAG region are closely tied to air quality goals. National standards for new cars result in less energy use and less pollution. Rigorous air quality vehicle testing programs in the MAG region help maintain these improvements.

REDUCE CONGESTION

Minimizing congestion and resulting delays, is a central theme in all modal elements of the MAG LRTP. In August 1994, MAG adopted a Congestion Management System (CMS). It includes a rating system for projects that incorporates current and future congestion levels, land use planning considerations and support for multimodal projects. This system is incorporated into the MAG planning process through an annual report to member agencies and in the selection of projects for MAG Federal funding. The CMS incorporates congestion as a factor for prioritizing freeways and includes the MAG HOV Plan.

The analysis of congestion is addressed throughout the MAG planning process. The MAG transportation models are used to analyze future congestion while a major study completed by MAG in 1991 (*Analysis of Congestion and Related Problems in the MAG area*) detailed the nature of current congestion.

Travel demand programs are part of the MAG LRTP and as air quality control measures they have a high priority for funding. MAG Federal funds are used to support these programs. MAG Federal funds are also used to support local efforts to support traffic signal enhancements and freeway management systems. A strategic plan for ITS (Intelligent Transportation Systems) has been adopted in the region, and implementation efforts are in progress.

CONSISTENCY WITH LAND USE PLANS

The MAG Long Range Transportation Plan is based on MAG socioeconomic projections. The projection process is based on the MAG DRAM/EMPAL model and results are reviewed and adjusted by local officials though the MAG Population Technical Advisory committee. MAG socioeconomic forecasts focus on

projections of population and employment at the Traffic Analysis Zone (TAZ) level (often this corresponds to the square mile). Other variables include household size and income.

The MAG socioeconomic forecasting process starts with County control totals for population and employment which are developed by the Department of Economic Security. Key input into the forecasting process includes local land use plans which reflect "local/central city development goals (community, economic, housing, etc.)." Local land use plans also incorporate projections of "environmental protection, growth management and land use activities". MAG socioeconomic projections are the basic input into the MAG transportation models which forecasts transportation demand.

More detail on the MAG process that ensures consistency between land use and transportation plan is documented in the 1993 Update technical report entitled *Demographic, Economic and Land Use Considerations*. The following three recent studies by MAG quantitatively analyze the relation between urban form options and transportation impacts:

- *System Analysis Study* (1990)
- *Congestion Management System* (1994)
- *Urban Form Study* (1995)

In March, 1995, the Regional Council formed a Blue Ribbon Committee to develop a process to develop a growth plan for this region. The committee consists of elected officials, and representatives of the business, environmental, neighborhood, academic, and corporate communities as well as unaffiliated citizens. In January 1996, the Committee recommended a process for creating a comprehensive vision and implementation process for the region.

ENHANCEMENTS

All ISTEA enhancement funds in Arizona are administered by ADOT, including project selection. Fifty percent of these funds are set aside for local projects while the other 50 percent is targeted for the State highway system. MAG has established an Enhancement Funds Working Group to recommend projects for funding in the MAG region. Several projects have been selected by ADOT for ISTEA enhancement funding in the MAG region.

EFFECTIVENESS, EFFICIENCY AND FINANCING

Analyzing the effectiveness of transportation system performance under alternative transportation investment choices is the principal function of the MAG planning process. In road planning, traffic volumes (passengers and freight movement) are closely considered in assessing investment options. Other indicators of effectiveness considered include congestion relief, accident reductions, travel times and occupancy rates. In transit planning ridership, coverage and hours of service are key indicators of effectiveness (i.e., service) which are regularly considered in assessing investment options. System continuity is also an effectiveness indicator that is closely considered in assisting alternative freeway, street and bicycle investments.

The cost effectiveness of alternative transportation investments are considered in the MAG Planning Process. The MAG Congestion Management System considers miles of passenger movement per dollar for each mode of transportation to the extent feasible. The MAG freeway prioritization criteria in-

cludes cost effectiveness as a factor which is operationalized as vehicle miles of travel per capita.

The financing of transportation investments are closely addressed in the MAG LRTP by developing funding plans for each mode of transportation. These funding plans were developed for each mode in the 1993 Update and are further refined in subsequent updates.

Considering the transportation "related impacts on community/central city goals regarding social and economic development, housing and employment" is addressed in the broader context of Regional Values as adopted by the MAG Regional Council in July 1994. In general, transportation improvements contribute to economic and employment goals by reducing travel times which result in expanded labor pools for employers and more job opportunities for employees. These benefits are some what offset by higher taxes needed to pay for the improvements. Transportation investments also expand access to cheap peripheral land. This can keep land values down for home buyers and employers.

ACCESS TO TERMINALS, RECREATION AND MILITARY INSTALLATIONS

Specific activities called out for consideration in this regulation are addressed in the MAG technical support document *Demographic, Economic and Land Use Considerations*. Airports, and airport access, are specifically addressed in the MAG Regional Aviation System Plan as approved by the MAG Regional Council in December 1993.

Intermodal issues are addressed by the MAG Intermodal Management System Working Group, which includes public and private sector representatives. In 1993, MAG completed the technical working paper Intermodal Facilities and Goods Movement Considerations. In 1995, MAG completed development of a Regional Intermodal Management System. This effort has focused on identifying intermodal terminal needs. MAG will participate with ADOT in developing a state wide Intermodal Management System that will focus on intermodal corridors.

ROAD CONNECTIVITY

Connectivity between roads in the MAG area and roads in surrounding areas is not a significant issue in this region. This is because Maricopa County is very large and undeveloped on the edges. Essentially the only paved routes into and out of Maricopa County are State routes. The one exception to this is in the vicinity of Apache Junction, however, in this area connectivity issues are minimal because of the prevailing mile grid road system.

MANAGEMENT SYSTEMS

MAG has completed a congestion management and an intermodal management system. The other systems are being completed by RPTA and ADOT in cooperation with MAG.

In November 1996, a report on results of the management systems was completed and distributed to MAG member agencies. Results included (1) congestion maps, (2) congestion strategies, (3) intermodal facility needs, (4) bridge needs, (5) intersection accident rates, (6) transit vehicle needs,

(7) a list of the lowest rated paving in major jurisdictions, and (8) information related to Title VI of the Civil Rights Act of 1964. Results were used by member agencies to develop, select, prioritize, and submit projects for local and Federal funding in the MAG TIP and LRTP. Projects submitted to MAG were rated by an air quality rating system and a congestion management rating system.

RIGHT OF WAY PROTECTION

ADOT has identified future freeway alignments and design concepts for all new freeways including specific parcels that are needed. Most corridors include extra right-of-way for future transportation improvements after initial freeway construction. In 1995, MAG reaffirmed the "Red Letter Process" which is a procedure of notifying ADOT of any development activity in a freeway corridor. In 1996, further refinements of the process were instituted. The ADOT Life Cycle Program and the MAG LRTP contain limited funding for right-of-way protection and contingencies. In some cases local jurisdictions delay or minimize development in freeway corridors.

Most MAG members have street plans which identify future right-of-way needs for major arterial streets. In undeveloped areas, dedications of this right-of-way is usually obtained through the development process.

In addition, MAG is currently undertaking a project which will create a freeway right-of-way GIS and develop policies and procedures to more accurately address cost escalation and protection needs.

EFFICIENT FREIGHT MOVEMENT

The efficient movement of all traffic, facilitates the movement of both freight and passengers. In projecting traffic volumes the MAG transportation models directly incorporate the demand of commercial vehicles in a special sub routine.

Intermodal issues are addressed by the MAG Intermodal Management System Working Group which includes representatives from the public and private sectors. In 1993, MAG completed the technical working paper *Intermodal Facilities and Goods Movement Considerations*. In 1995, MAG completed development of a regional Intermodal Management System. This effort included a survey of freight terminal operators to access terminal needs. MAG will participate with ADOT in developing a statewide Intermodal Management System that will focus on intermodal corridors.

LIFE CYCLE COSTS

Operating, maintenance and capital costs are considered in developing the funding plans for the MAG LRTP. Life Cycle costing is often used at the project level. The Transit, Bridge, and Pavement Management Systems directly address life cycle costs. In the design of high volume roadways careful consideration is given to the trade off between asphalt and concrete. Buses are purchased on a life cycle basis.

OVERALL SOCIAL, ECONOMIC, ENERGY AND ENVIRONMENTAL EFFECTS

These factors are addressed in the MAG technical supplement reports to the 1993 MAG LRTP entitled *Demographic, Economic and Land Use Considerations*, and *Environmental and Energy Considerations*. Also, the overall effects of energy are addressed under the above heading "Consistency with Energy Goals" and economic factors are addressed under the above headings of "Consistency with Land Use Plans" and "Efficiency, Effectiveness and Financing". Air quality issues are very extensively addressed in the MAG planning process. See the separate conformity analysis document prepared for this 1997 Update of the MAG LRTP.

INCREASE TRANSIT USAGE

The ongoing planning process seeks to increase transit ridership. However, long term trends have not been favorable. At a national level prior to 1960 most transit systems were privately owned and making a profit. Currently most transit systems are publicly owned and typically over two-thirds of the costs are publicly subsidized. Transit market share has been on a long term decline.

The Phoenix area transit system is the fourth most efficient in the nation. Additional efficiency is possible, however, major increases in transit ridership will require new funding. Also, given the nature of transit most of these funds will need to be for operating expenses.

Currently most transit operating revenues in the region come from city general funds. Only a small portion of Federal funds can be used for operating expenses. A portion of MAG Federal highway funds (CMAQ and some STP funds) have been transferred through the Federal Transit Administration to purchase buses. Additional transfers would be helpful, but is limited by the need for additional operating revenues. State efforts such as LTAF and Powerball funds to expand transit services have been limited. By constitutional restriction, Arizona Highway User Funds cannot be used for transit purposes.

MAG and RPTA have developed and pursued major plans for transit expansion. In 1989, approximately 70 percent of the voters of Maricopa County voted against a half-cent sales tax for a major fixed guideway system plan. In 1994, 54 percent of the voters voted against a plan that would have split a new half-cent 50/50 between freeways and transit.

In 1996, voters in the City of Tempe approved a half-cent sales tax to improve transit services. Other cities are actively considering going to the voters for a local taxes to support transit. The MAG LRTP calls for doubling transit service and, in 1997, a starter corridor fixed guideway concept has been added to the Plan. Several studies are now under way that could lead to including a regional fixed guideway system in the MAG LRTP.

TRANSIT SECURITY

This item is addressed in the technical supplement document *Supplemental Transit Considerations*. This document describes the current security system and system goals. Current capital investments in security include: support items for routine activities by security personnel, facility design features to

enhance security, and monitoring equipment to observe vulnerable areas. In addition, in an effort to enhance and maximize efficiency of transit system security, a number of additional purchases have been identified to better define future capital investments related to transit system security, and future goals and needs are delineated.

Each year a five year plan is developed for all projects, including those related to transit security. This plan includes items that need replacement and identifies needs for system expansion.

RECREATIONAL TRAVEL AND TOURISM

Subsequent to the passage of ISTEA, recreational travel and tourism were added to the list of planning factors with the enactment of the National Highway System Designation Act in November 1995. There is currently no federal guidance related to the consideration of travel and tourism, however, the MAG region benefits from these factors.

Because of the large tourist element in the economy of the Phoenix area, tourism is directly addressed in the MAG transportation planning process. Specifically, the MAG transportation modeling process incorporates Sky Harbor International Airport travel seasonal population, and transient population.

Sky Harbor is a major gateway for tourist travel to the region, especially in the winter season. Sky Harbor is a special submodel in the MAG transportation models. In 1996, a special study of this major generator was completed to more accurately estimate travel patterns and air quality impacts.

The MAG socioeconomic projections include estimates of seasonal and tourist populations. These estimates are based on land use zoning information on hotels and motels, as well as U.S. Census information on nonresident population. Nonresident population estimates are important in the transportation modeling processes because of major concentrations of winter visitors and related travel in some areas of the region.

Estimates of recreation travel by local residents are part of the overall household travel pattern which is incorporated into the MAG transportation models. Special attention is given to estimating recreational travel demands on gateway routes when dealing with specific projects. Recreational travel is a major weekend factor on I-17, State Route 87 (Beeline Highway), and in the Lake Pleasant area.

APPENDIX C

Trend Funding Strategy

The strategy for funding the MAG Long Range Transportation Plan (LRTP) is to maintain current (or equivalent) funding sources at historic per capita levels. Most of the funding sources for the MAG LRTP require periodic action to continue or to adjust for inflation. The MAG strategy to maintain a trend level of funding commitment to transportation includes the following basic elements.

- Maintain an updated Long Range Transportation Plan for the region.
- Provide numerous opportunities for public input.
- Inform the public and elected officials of transportation needs and benefits of the Plan.
- Support periodic legislative and referendum actions to maintain trend levels of transportation funding.

FUNDING SOURCES

Funding for the MAG LRTP is provided by several sources. A few of these sources have the potential to adjust for inflation and growth, such as the Vehicle License Taxes (VLT) and sales tax revenues. However, most of the funding sources as described in the following paragraphs require periodic actions to continue at existing per capita levels.

Fuel Taxes. Taxes on fuel in Arizona are levied in terms of cents per gallon. As vehicles become more efficient and as inflation occurs, this funding source slowly erodes. In the past, legislative

action has been taken periodically to increase per gallon fuel taxes to maintain a consistent level of funding from this source.

The funding plan for the MAG LRTP is based on these types of adjustments continuing in the future. However, adjustments may not take the same form as in the past as the passage of Proposition 108 in 1992 now requires a two-thirds vote by the legislature to increase taxes.

Fuel tax revenues are the principal element of Highway User Revenue Funds (HURF). In the MAG LRTP trend HURF revenue adjustments are needed to support street plans and to complete planned improvements to existing freeways.

General Funds. City general funds are used to complete street projects and to provide transit services. These funds are incorporated into five year programs and approved on an annual basis by city and town councils. A continuation of these general funds is assumed as a portion of the funding plans for the street and transit element of the MAG LRTP.

Federal Funds. The Federal funding program is periodically reauthorized and adjusted by Congress. The last reauthorization was the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) which will end at the end FY 1997. The funding plan for the MAG LRTP assumes that formula Federal funding will continue for transportation but at a declining rate in terms of constant dollars. However, opportunities for additional federal discretionary funds, especially in the area of transit, will continue to be pursued.

In the MAG LRTP, federal funds are planned to support a portion of bus service and 50 percent of the capital costs of the fixed guideway starter corridor. A major portion of MAG Federal funds are committed to new freeways, while smaller amounts are typically programmed for transit, street, bicycle and pedestrian projects. A significant portion of ADOT funding is needed for improvements to existing freeways called for in this Plan.

Transportation Sales Tax. In 1985, voters of Maricopa County approved a half-cent sales tax for 20 years to complete the planned freeway system. This referendum also included $5 million per year for transit. In 1994, voters of Maricopa County rejected a proposal to add a half-cent sales tax split 50/50 between freeways and transit, and to extend the existing half-cent sales tax to complete planned freeway.

The 1996 Plan Update included a half-cent sales tax extension after 2005 when the half-cent for freeways will end. This extension was divided with 50 percent revenue to complete new freeways and 50 percent to double transit service, With higher revenue projects, and changes in the South Mountain design concept, this Plan foresees completing planned new freeways without an extension. Currently, several cities are pursuing tax initiatives to improve transit service.

STRATEGY

MAG serves as the Metropolitan Planning Organization for this region. It does not have the authority to approve tax increases and it does not have the authority to conduct an election campaign to approve a referendum. The MAG strategy for funding the LRTP is focused on developing technically sound plans that reflect community interests.

Transportation Planning. Transportation improvements require long term and ongoing funding commitments. For voters and elected officials to make funding commitments of this magnitude, sound

transportation plans and planning procedures are required. The MAG Transportation Planning Process is required to be certified by the U.S. Department of Transportation. In May 1995, MAG was certified by the U.S. Department of Transportation.

The MAG LRTP is continuously being analyzed and adjustments are usually made annually. MAG transportation planning is multimodal and closely integrated with land use and air quality planning. Planning is supported by state of the art computer models and completed in accord with all Federal and State requirements.

A legislative performance audit in 1991 implemented numerous changes to enhance the MAG freeway program. The ADOT Life Cycle Office and the MAG Fiscal Analysis Unit were established to ensure that costs and revenues are kept in balance. Responsibilities were clarified with MAG being assigned responsibilities for setting freeway priorities and approving material cost increases. The Right-of-Way Acquisition Advisory Panel was established to provide more oversight of major right-of-way purchases. In addition, the Citizens Transportation Oversight Committee (CTOC) was formed to provide more input and review of regional transportation decisions.

Public Involvement Process. An extensive public involvement process has been adopted to secure public comments on updates of the LRTP. Early, mid-phase, final and continuous public involvement opportunities are provided. These public involvement opportunities are extensively advertised and held throughout the region. Final public comments are reviewed, responded to and conveyed to members of the Regional Council and Federal officials.

MAG periodically conducts public opinion surveys on transportation issues. It also reviews the results of related public surveys conducted by other organizations. Annual adjustments to the Plan provide timely opportunities to respond to technical changes as well as evolving public opinion. Major opportunities for public feedback on the MAG Transportation Plan were provided in 1985, 1989 and 1994 when elements of the Plan were presented to the voters of Maricopa County for funding approval. Subsequent to the defeat of Proposition 400 in 1994, Plan adjustments have been made. In the future, voters are likely to again be requested to consider funding for the MAG LRTP whether at the local, regional or state level.

Needs and Benefits. In order for voters and elected officials to support funding for transportation, the need for and benefits of transportation improvements need to be clearly identified. The MAG Plan identifies what transportation projects and services will be provided given specific levels of funding.

Section Four of this report, the MAG Transportation Management Systems Report and the related Conformity Analysis Report detail the need for this Plan, as well as its benefits. Ongoing transportation improvements in the Valley are primarily needed to keep pace with growth. Over the life of this Plan, resident population in Maricopa County is projected to increase almost 70 percent, while regional travel is projected to increase almost 80 percent. In response to this growth, the MAG LRTP calls for a 69 percent increase in freeway and expressway lane miles, a 57 percent increase in street miles and a doubling of bus services. With these improvements average traffic speed is projected to remain about the same as today and the percentage of congested freeway lane miles in the PM peak hour is projected to increase from 17 to 34 percent. Without the planned improvements (No-Build) speeds are projected to decline 11 miles per hour and the freeway lane miles with PM peak hour congestion is projected to increase from 17 percent to 54 percent.

ISTEA REQUIREMENTS

Section 450.322(11) of the Code of Federal Regulations requires a financial plan for the MAG Long Range Transportation Plan. This Plan needs to include "existing and proposed funding sources that can reasonably be expected to be available". "Proposed new revenue . . . shall be identified including strategies for ensuring their availability for proposed investments." The MAG LRTP includes a financial plan for each mode of transportation, and this Appendix outlines a strategy to ensure these revenues. The financial plan calls for the historic continuation of existing sources. For example, Federal guidelines specifically identify the historic continuation of Federal funds as an existing revenue source rather than a new revenue source:

"Where the transportation plan or TIP period extends beyond the current authorization period for Federal program funds 'available' [existing] funds may include an extrapolation based on historic authorization of Federal funds that are distributed by formula."

Federal officials have offered the following guidelines for new funding sources.

"The financial plan must identify strategies for ensuring their [new funding] availability. It is expected that the strategies, particularly for new funding sources requiring legislation, voter approval or multi-agency actions, include a specific plan of action that describes the steps that will be taken to ensure that the funds will be available within the time frame shown in the financial plan."

Federal officials have also provided the following guidelines as to what should not be considered "reasonably available" new funding.

"The following are examples of specific cases where new funding sources should not generally be considered to be 'reasonably available': (1) past efforts to enact new revenue sources have generally not been successful; (2) the extent of current support by public, elected officials, business community and/or special interests indicates passage of a pending funding measure is doubtful; or (3) no specific plan of action for securing the funding source and/or other information that demonstrates a strong likelihood that funds will be secured is available."

RECENT ACTIVITY

Potential "new" funding sources under consideration are actually variations of historic sources needed to maintain a trend level of commitment to meet ongoing regional transportation needs in this high growth area. This 1997 Update of the MAG LRTP is structured around the adjustment of statewide fuel taxes to meet planned road needs and local taxes to meet transit needs. However, a wide variety of funding options are under active consideration. The level of activity and concern demonstrates that the funding levels need to complete the LRTP are reasonably feasible.

General Sales Tax. MAG and RPTA have the authority to request the County Board of Supervisors to call an election for a new sales tax split 50/50 between freeways and transit. MAG has the authority to request the Board of Supervisors to present a measure to the voters to extend the existing freeway tax.

Vehicle License Tax Transfer. The Vehicle License Tax was approved in 1940 in lieu of an ad valorem property tax on automobiles. As the Vehicle

License Tax (VLT) was collected in lieu of property tax, resulting proceeds were largely returned to cities, towns and counties to be used for general fund purposes such as, police, fire and parks. Various studies and recommendations have proposed that a larger share of these taxes be applied to transportation needs.

Fuel Tax Increase. The ADOT Board has regularly raised concerns about the needs for additional revenues to maintain the state highway system. In November 1996, the MAG Regional Council passed a motion to support ADOT in addressing statewide transportation funding needs. The Chairperson of the ADOT board has proposed a ten cent per gallon tax on fuel to address statewide transportation needs.

Sales Tax on Fuel. Options to extend the current State sales tax (now at 5 percent) to fuel have been discussed. This has the advantage of automatically adjusting for inflation although fuel price can vary substantially. Taxing options include tax on gasoline, tax on use fuel, and sales tax on the State and Federal fuel tax. Distribution options include returning to source and allocation based on population. Under the Arizona Constitution taxes on fuels must be applied to roads. However, VLT taxes could be used for transit. A transfer mechanism with HURF VLT taxes may be possible.

Local Transit Tax. In 1996, the voters of Tempe approved a half-cent sales tax for transit. Other cities are actively considering a similar approach for transit improvements.

Tolls. ADOT has the authority to approve toll road proposals from the private sector. ADOT is currently evaluating a toll road proposal for the South Mountain. Also, a toll road concept has been suggested for express lanes on freeways in the East Valley. In 1993, MAG approved a resolution to endorse an ADOT application for federal assistance to test the feasibility of tolls for single occupant vehicles on HOV lanes within the MAG Freeway System. However, this concept was not funded.

State General Funds. In 1996, a special Governor's Task Force completed a study on Alternative Transportation Systems. This study called for State General Funds to be used for transit improvements.